BULLETIN

Missouri
Botanical
Garden

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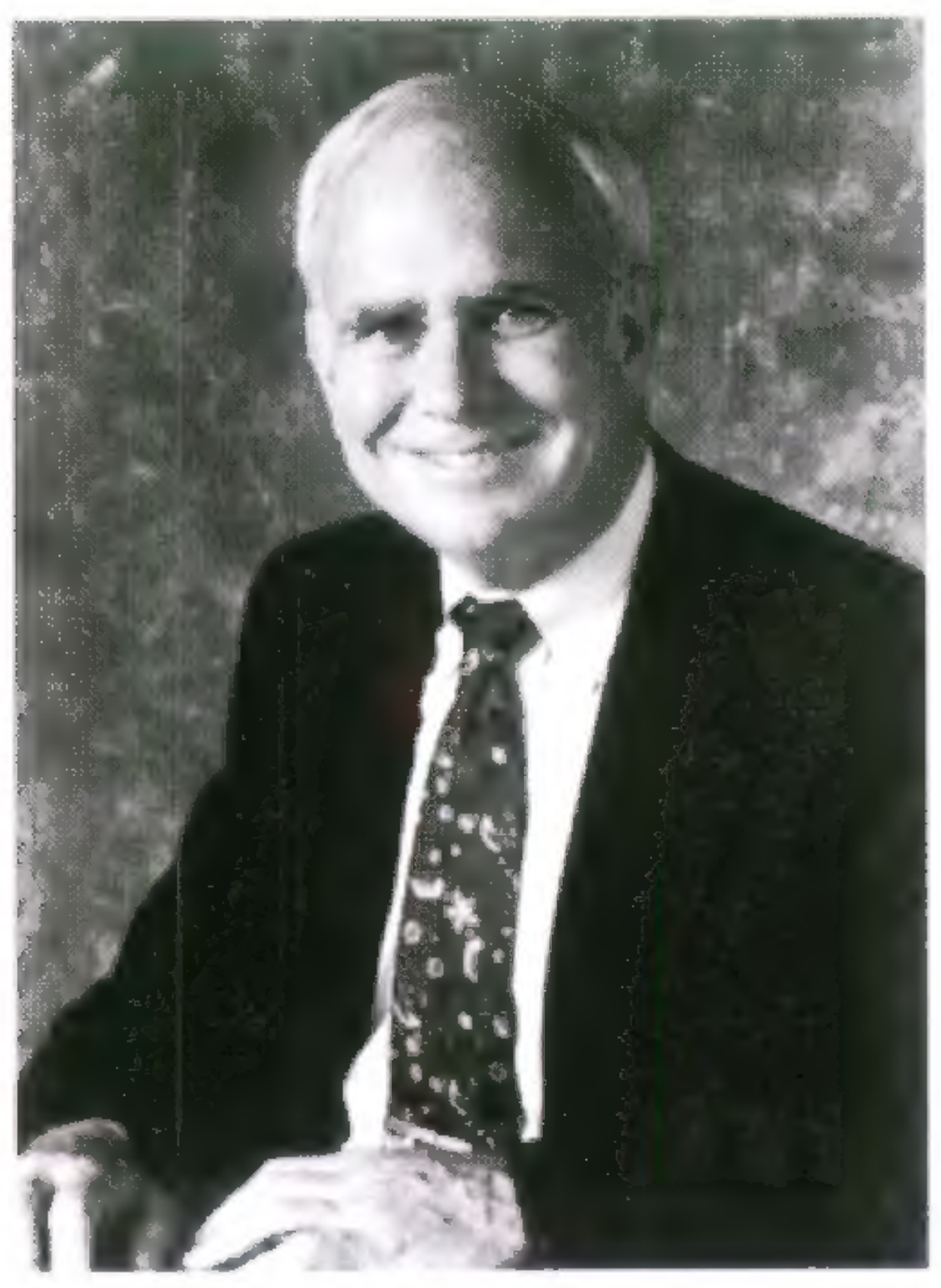
MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

Working to protect the environment defines many of our activities here at the Garden, as we constantly seek ways to educate and motivate people about environmental issues and the absolute necessity of preserving biodiversity. In this issue, you will see many of our efforts in action, from educational programs such as ECO-ACT, to the new docents in the Brookings Interpretive Center, to the work of our worldwide research program. Closer to home, our new research center is being built as a model of environmentally responsible architecture; take a look inside on pages 4 and 5. And be sure to visit our annual Orchid Show, which runs throughout February and March and provides a showcase for our extraordinary collection of beautiful, colorful, and unusual orchids. This year the Orchid Show focuses on forest dwellers who have learned to live in harmony with their tropical environment.



On page 18 we introduce you to Dr. Robert Magill, who has been named director of the Research Division, Dr. Henk van der Werff, the new deputy director of research, and Dr. John Schnase, who is director of our new Division of Botanical Informatics. I extend our warmest appreciation to Dr. W. D. Stevens, who has directed the Research Division since 1991 with such distinction and who will continue to coordinate our programs in Latin America.

On a personal note, in November I was deeply honored to receive the Henry Shaw Medal. I again extend my thanks to the Board of Trustees and to each one of you who helped to make my 25th anniversary as director of the Garden such a memorable year. — *Peter H. Raven, Director*

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400

24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522

You will need a touch-tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401

Information on jobs and volunteer opportunities at the Garden is available with a touch-tone phone. Listings are updated bi-weekly. Horticultural Answer Service: (314) 577-5143 Monday through Friday, 9:00 a.m. to noon.

Horticultural Answer Service: 577-5143

9:00 a.m. to noon, Monday through Friday.

Master Composter Hotline: (314) 577-9555

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Visit the Garden on the World Wide Web:
http://www.mobot.org/

Mailing Address:

Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours

9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Kemper Center for Home Gardening:

9 a.m. to 5 p.m. daily; Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop:

9 a.m. to 5 p.m. daily; 9 a.m. to 6:30 p.m. daily, Memorial Day through labor Day. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant:

Buffet service during hours the grounds are open.

Tower Grove House:

9:45 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January. Admission is free for Garden members.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 30 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House is open 11 a.m. to 3 p.m. through February, closed on Mondays. Admission is free for Garden members. For information call (314) 451-3512.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this Bulletin and mail to:

Bulletin
Missouri Botanical Garden
P.O. Box 299
St. Louis, MO 63166-0299

Your Name: ______________

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City ______________
State ______ Zip ______

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Date effective: ______________
Street ______________
City ______________
State ______ Zip ______

On the Cover
Camellias fill the Linnean House with color on cold winter days.
—*Photo by Jack Jennings*

Editor
Susan Wooleyhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members. For information, please call (314) 577-5118.

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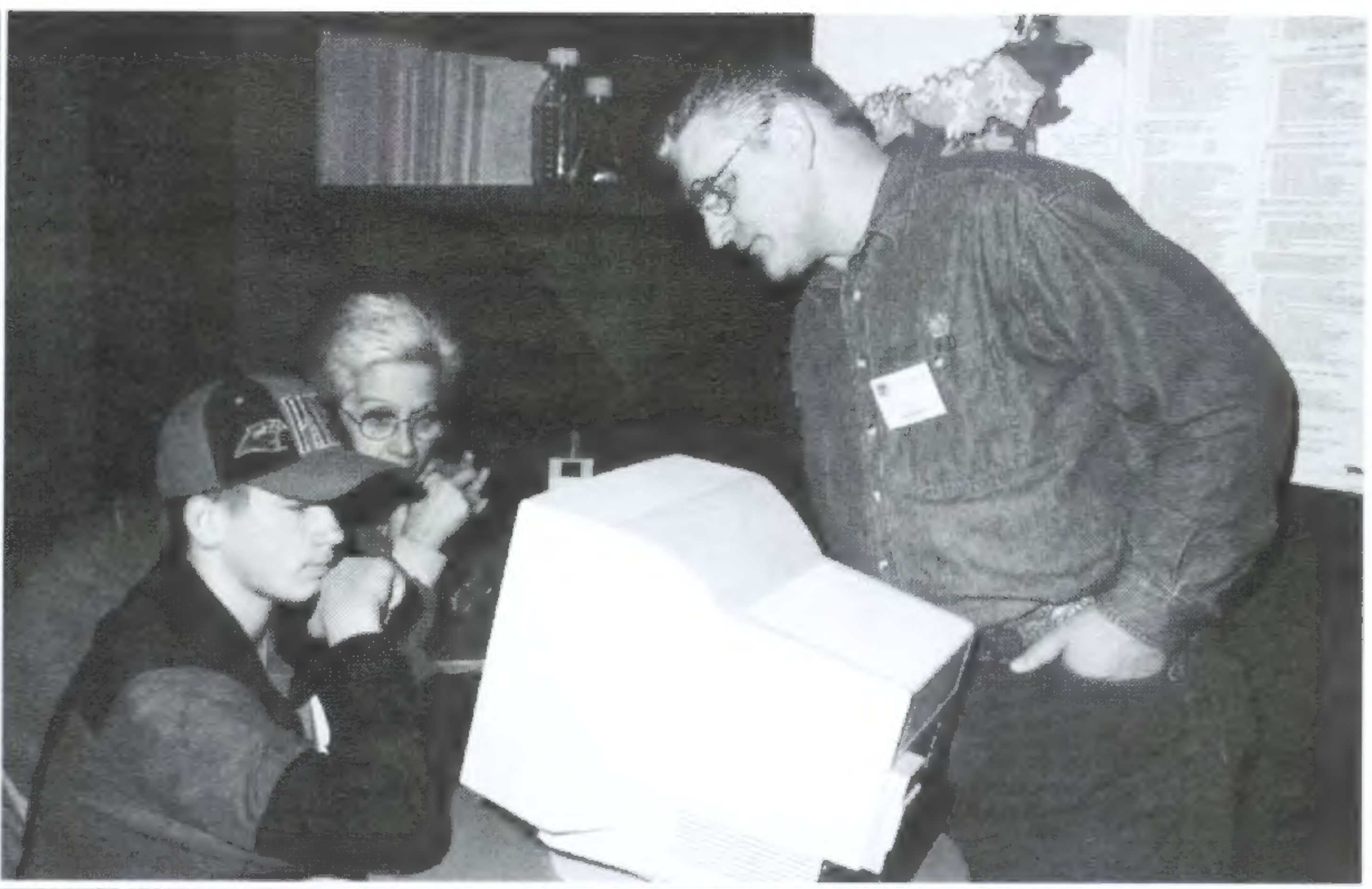
Recycling... a Natural Thing to do



PHOTOS BY CLIFF WILLIS

Above, from left: Exploring "Recycling — A Natural Thing To Do."

Touch-screen computers let visitors ask questions of botanists and others who work with plants.

Docent Tom Stiern explains insect mimicry.

Below, from left: Docent Debbie Lanter introduces young visitors to "Cool Nights in Warm Deserts."

Investigating "Houseplants in the Rain Forest."

Visitors turn a dial to see how energy from sunlight affects the weather.

Docents at the Brookings Interpretive Center:

Exploring Biomes and Biodiversity

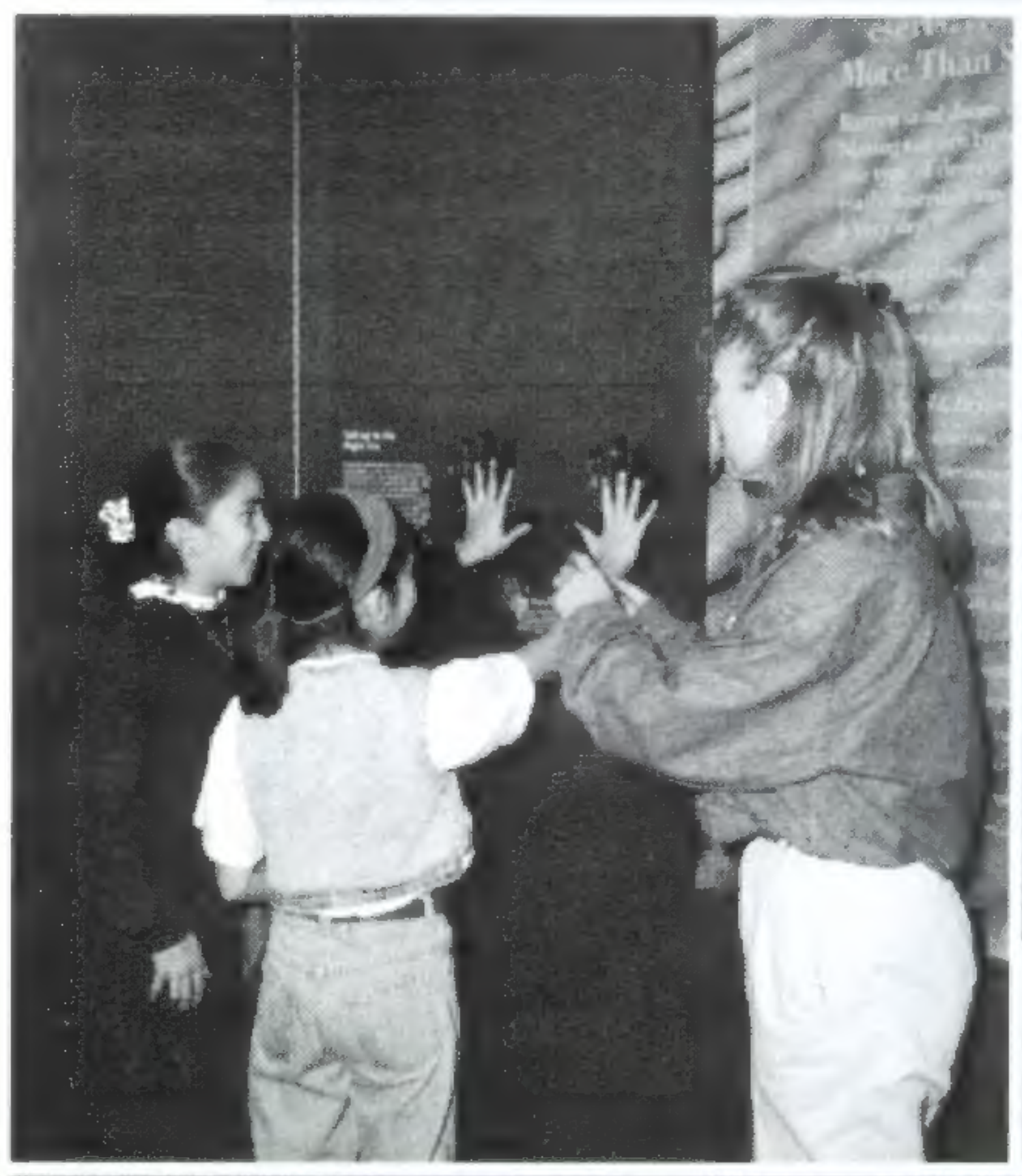
The Brookings Interpretive Center in the Climatron complex is a wonderful place to learn more about plants and Planet Earth. Visitors have fun climbing into the forest canopy via computer, investigating solar energy, and learning about ecosystems and environmental issues. They can even catch a glimpse of the "unseen garden" of botanical research via interactive computer interviews with scientists and other people who work with plants.

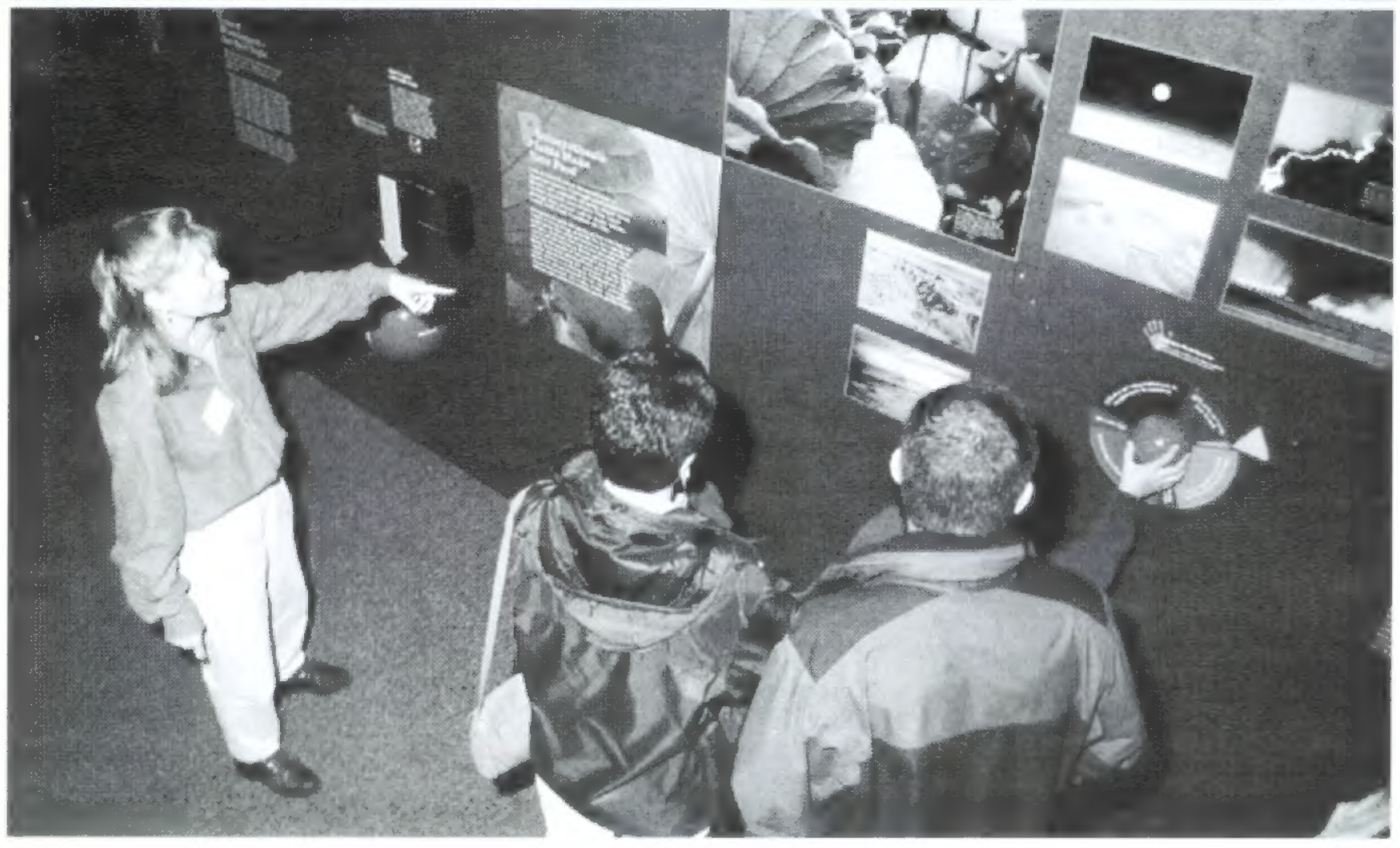
This fall, nine men and women were trained to serve as volunteer docents in the Brookings Center on weekends. The docents greet visitors, help them use the displays, and offer additional information about the ideas behind the exhibits.

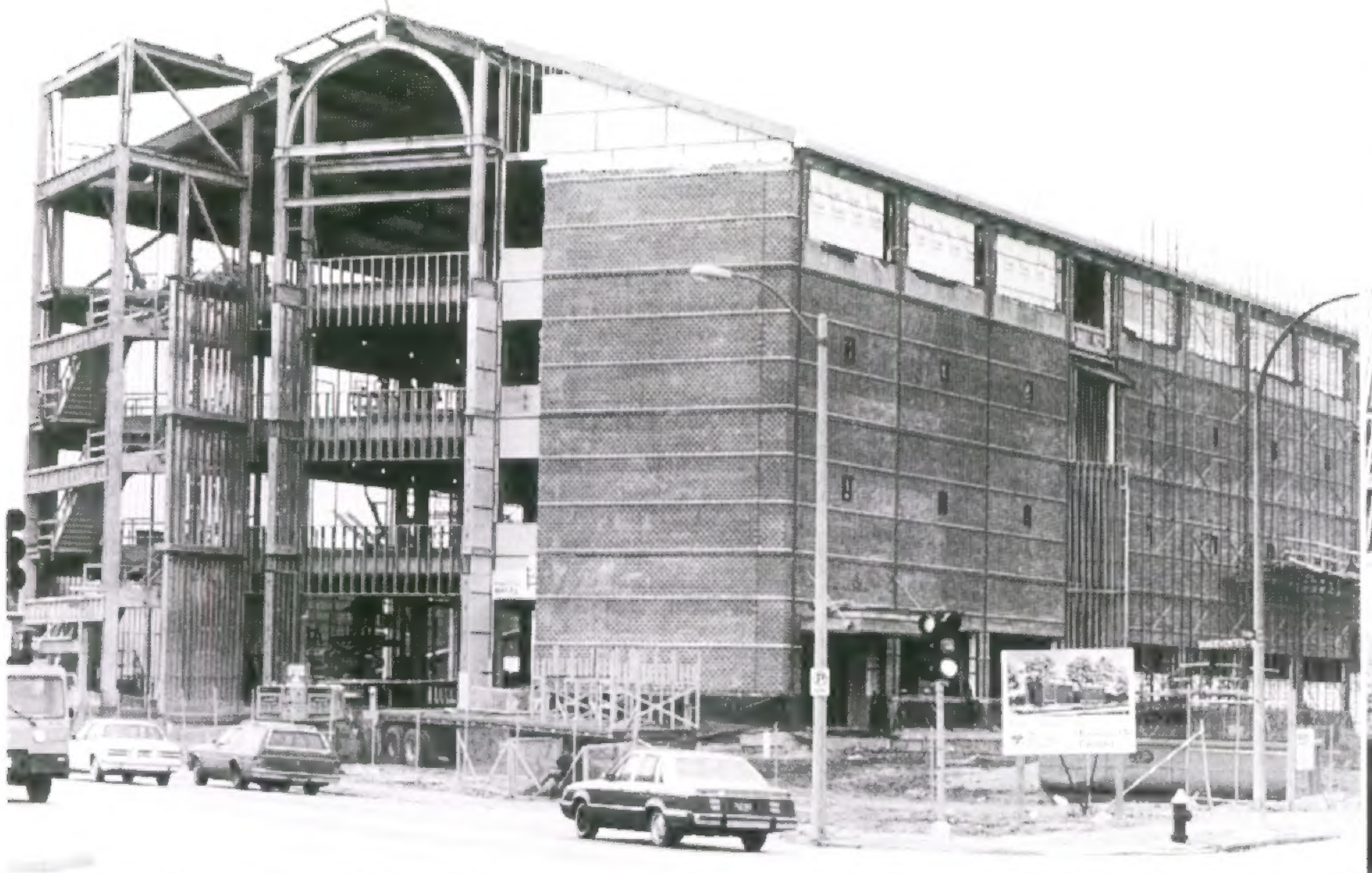
"The response has been great," said Greg Basco, who manages the Brookings Center. "The volunteers are enthusiastic, and their personal attention seems to make the experience even more enjoyable for visitors of all ages. The docents will be helping us to improve and develop the exhibits, too, as they gather information and ideas from people who are using the displays."

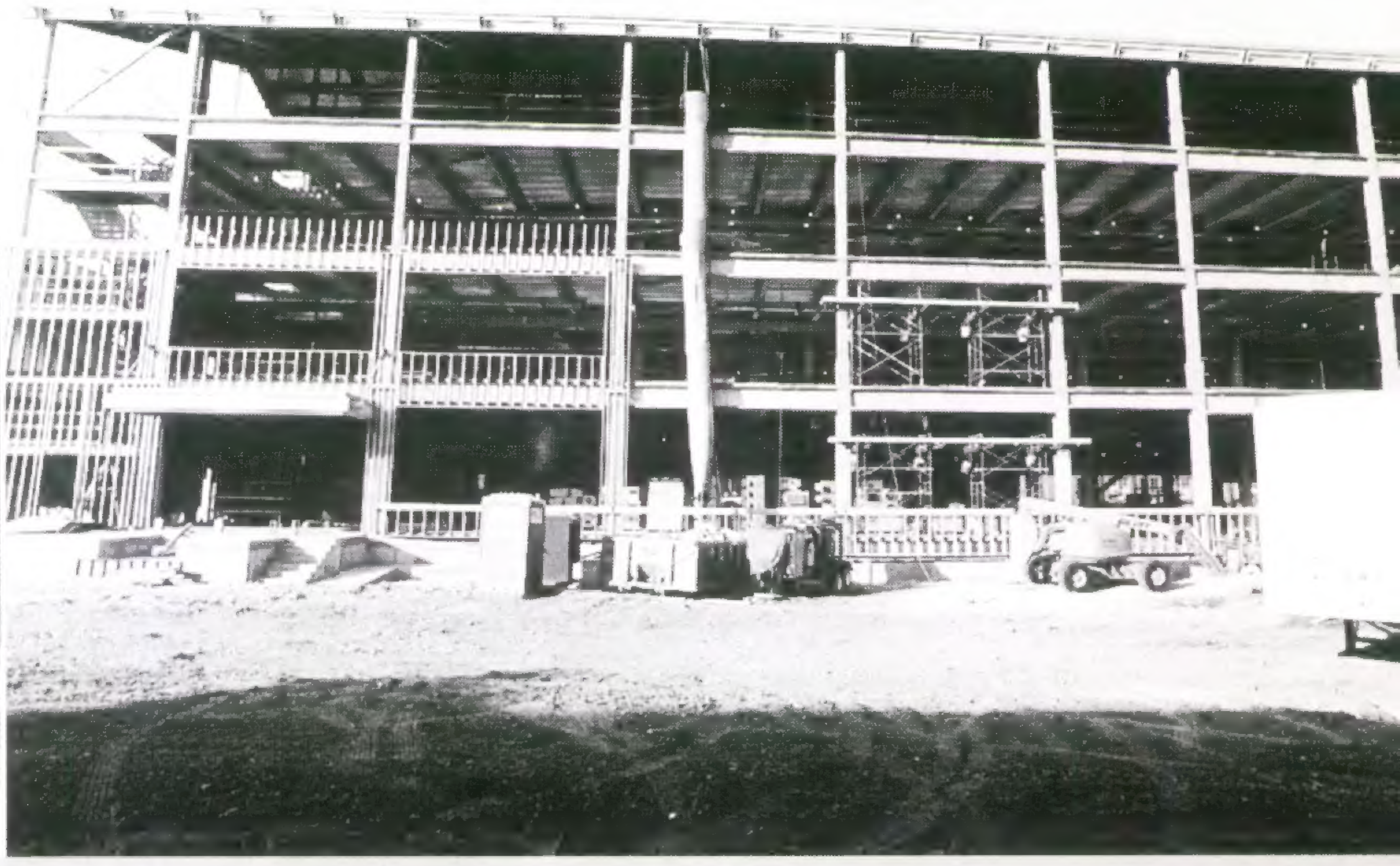
Volunteers began serving visitors in the center over the Thanksgiving weekend. The new docents are: Carmelita Dominguez, Michelle Gorka, Debbie Lanter, Susan Mintz, John Patrick, Tom Stiern, Ken Stovall, Pat Stovall, and Laura Struckhoff.

The Brookings Interpretive Center was created with support from the family of the late St. Louis philanthropist Robert Somers Brookings and the National Science Foundation. The Brookings Center opened to the public in November, 1995.









Above: The handsome brick facade of the research center is in harmony with other buildings in the neighborhood. The building is located at the northern edge of the site to enhance its solar exposure on the south. Herbarium and library storage areas are on the upper three floors of the cooler north side of the building, shown here, where extra insulation and minimal windows help to protect the priceless collections. A pitched roof minimizes the risk of leaks. Above right: Offices and public spaces are located on the south side of the building, with oversize windows for abundant natural light and wide views. All glass in the building uses low-emission coatings to filter out light harmful to people and plant specimens. The glass will also insulate, helping to reduce energy needs for heating and air conditioning.

Above, top: The top floor, where the Monsanto Library will be housed, shows the variation in interior lighting between the southern and northern sides on each floor. All books and plant collections will be stored on the north side, protected from daylight and heavily insulated for temperature and humidity control. Manually operated compactor shelving will maximize storage and minimize the need to heat, cool, and dehumidify between the stacks. Lights will illuminate only the open row, and motion sensors will turn lights off in unoccupied areas.

Above: Regular tours of the building are held for staff. Here Paul Brockmann (center) leads a group through the lobby on the first floor. The entrance vestibule is unusually deep to ensure that its inner and outer doors are never open at the same moment, helping to keep interior temperatures stable.

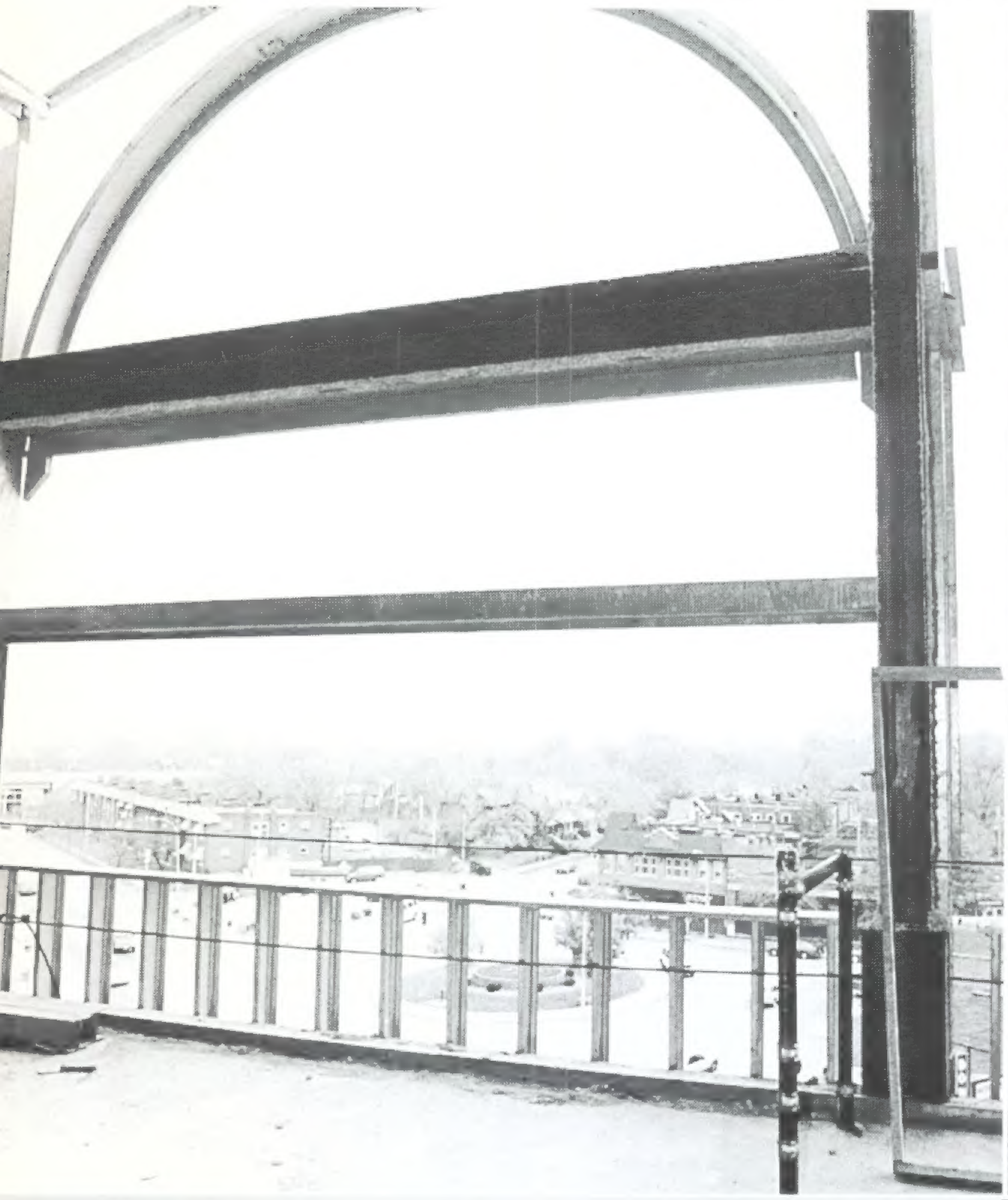
The New Research Center

Building for the Environment

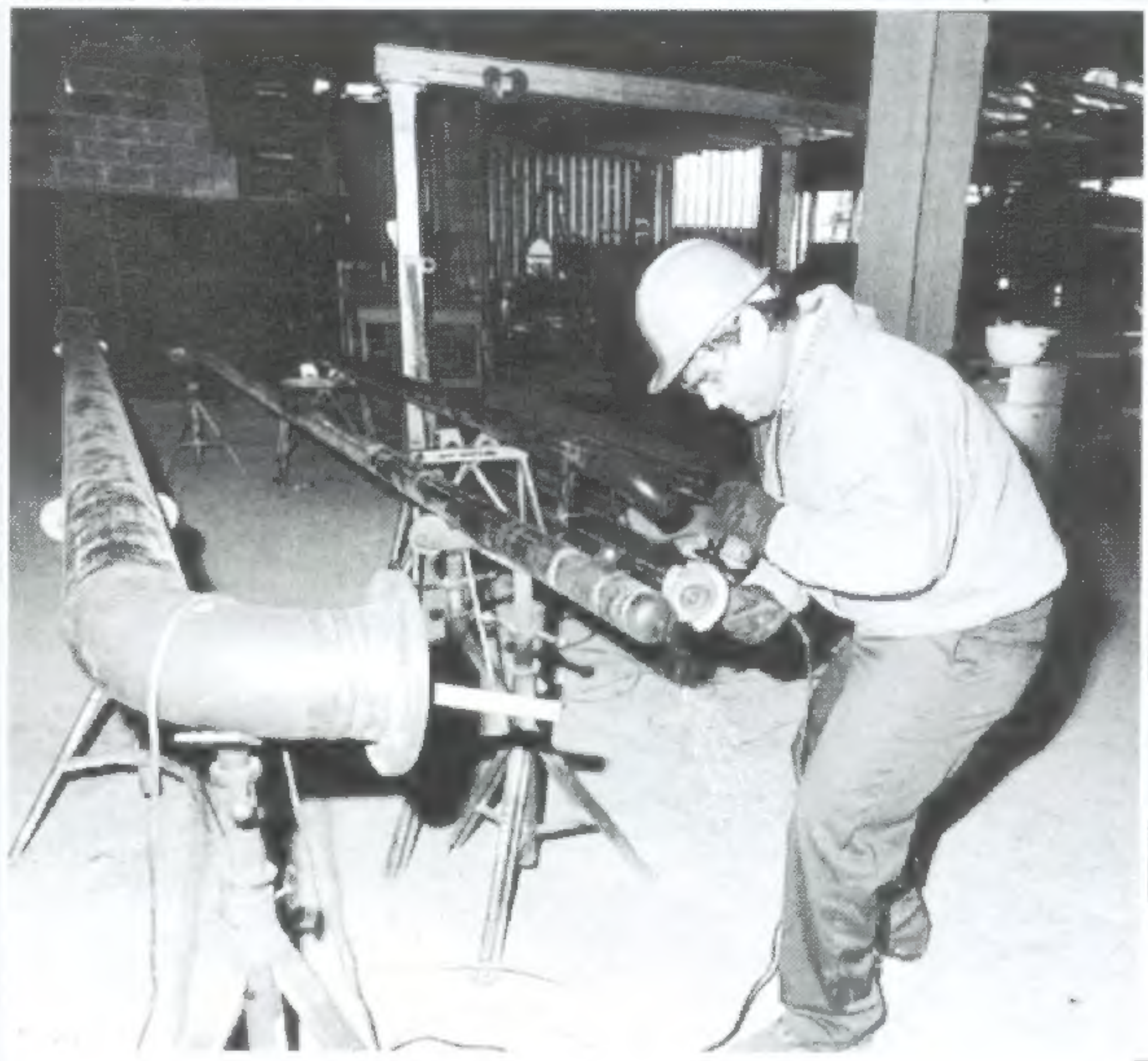
The Garden's new research center may not look green, but every aspect of the structure has been designed to provide maximum efficiency and comfort with the smallest possible impact on the environment. The structure includes a host of energy saving features; it also incorporates techniques and materials that recycle and conserve natural resources before, during, and after construction.

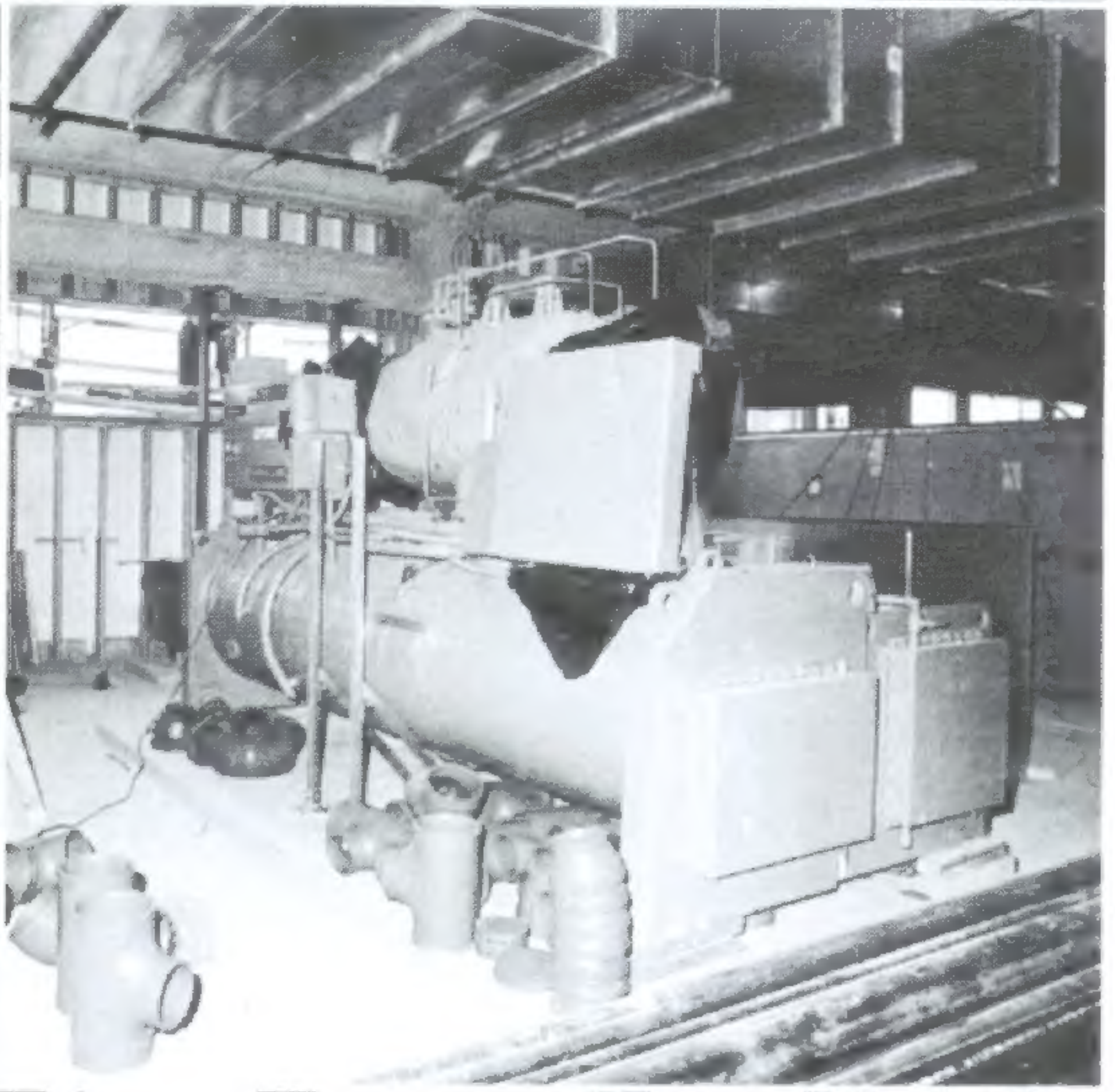
"We wanted the research center to stand as a tangible symbol of the Garden's commitment to environmental responsibility," said Paul Brockmann, director of general services. "We challenged our team of architects to come up with cost effective solutions that would conserve natural resources. They didn't use rote solutions; everything was tested and studied for environmental impact and its effect on the people who will be using the building. I think we have come up with some innovative ideas, and we hope the center will be a model for others who are concerned with environmental issues."

The research center is being built by St. Louis firms under the leadership of the architects of Christner, Inc., in association with Louis R. Saur & Associates, Inc. The Croxton Collaborative of New York City, national leaders in environmentally sustainable architecture, are consulting on the project. Construction management is by BSI Constructors, Inc. of St. Louis.



PHOTOS BY CLIFF WILLIS





s page, top left: Wide views over the city and surrounding
ghborhood can be enjoyed from every floor. Furnishings for the
eriors utilize low-emission, recycled, or biodegradable materials,
uding remanufactured furniture, linoleum made from natural
k, wood and rubber moldings from renewable sources, and wood
ring from scrap blocks of end grain fir.

right: Sunlight pouring through large windows on the south will
nce off solar reflectors and slanted ceilings to illuminate
ces and public areas in the interior of the building. Up to 60
cent of light in work areas will be natural, substantially reduc-
the need for artificial light and air conditioning. Because the
ding must be sealed to maintain temperature and humidity, the
tilation in occupied spaces will exceed building codes to
ure comfort and good air quality.

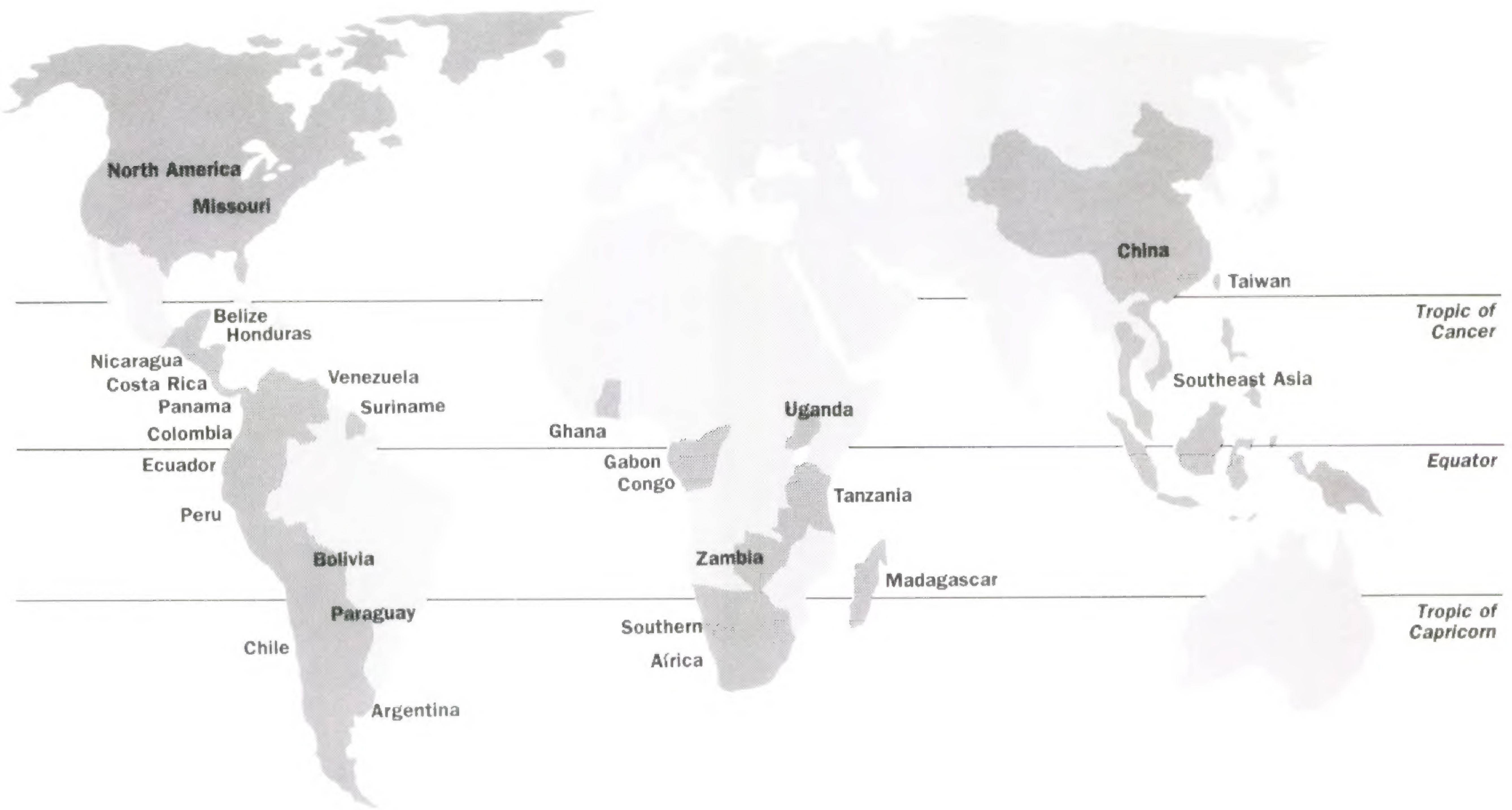
ter, left: Seismic protection for the building includes the use of
ansion joints in pipes and conduits to allow for movement with-
breakage during an earthquake. Mechanical systems are cen-
ized on the ground floor below the priceless library and herbari-
collections stored on the upper floors. Equipment using water,
am, or other fluids is located in vertical chases to avoid dam-
in the event of a rupture. To minimize the risk of water dam-
from sprinklers, a dry-pipe system will be installed and water
be permitted into the lines only if an actual fire is detected.

ter, right: For cooling and heating, a high-efficiency rotary
w chiller system and a steam/hot water boiler were selected
he best combination of initial and long-term operating costs.
pite the building's unusually high requirements for temperature
humidity control, the energy load during peak cooling demand
be less than half that of conventional buildings and less per
are foot than a typical residential home.

tom: Workmen apply brick to the north facade high above the
ner of Shaw and Vandeventer, with Interstate 44 in the back-
und. Parking areas around the building will be paved with con-
e rather than asphalt to reduce heat buildup. Concrete also
luces fewer harmful emissions during manufacture.

The Garden's Research Division is dedicated to increasing and disseminating knowledge about plants and their vital roles in sustaining life on Earth. Increasingly, information on plants is being communicated through electronic media and computer networks. Further information on many of the following projects is available on the World Wide Web through the Garden's home page (see box at right).

This map highlights the countries in which the Garden conducts research. Without exception, the Garden's activities are performed in collaboration with local institutions in these countries.



WORLDWIDE RESEARCH

North America

Flora of North America, with its organizational center at the Garden, is a major collaborative project that will provide a long-needed description of all plants growing spontaneously in the United States, Canada, and Greenland. Volumes 1 and 2 have been published, and Volume 3, which is now in press, may be previewed on the World Wide Web. The project is a model for computer-assisted techniques that may well revolutionize how such large-scale projects are done in the future.

The Center for Plant Conservation, headquartered at the Garden since 1991, works to conserve the endangered plants of the United States. The core CPC program is the National Collection of Endangered Plants maintained in a nationwide network of 28 Participating Institutions. The National Collection now includes 500 highly threatened U.S. species, making it among the largest conservation collections in the world.

The Flora of Missouri project is a jointly sponsored effort of the Missouri Botanical Garden and the Missouri Department of Conservation to produce a revised edition of former Garden curator Julian A. Steyermark's *Flora of Missouri*, first published in 1963. Missouri botanists continue collecting plants throughout the state, adding about 5,000 specimens per year to the Garden's herbarium collection.

Central America

Flora Mesoamericana, one of the most ambitious floristic projects ever undertaken, is a collaborative effort of the Missouri Botanical Garden, the Universidad Nacional Autónoma de México (UNAM), and the Natural History Museum (British Museum) to catalog all plants of Middle America from southern Mexico to Panama. Published in Spanish by UNAM, the first two of a total of seven volumes have already appeared.

Belize: In collaboration with the Maya Mountains Archaeological Project (Cleveland State University), Garden botanists have collected plants from the upper part of the Bladen River to the crest of the Maya Mountains.

Costa Rica: The goals of the Garden's Manual to the Plants of Costa Rica project, funded by the National Science Foundation, are to collect in poorly known areas, computerize plant collection records, and prepare a field-oriented plant manual useful to the many biological researchers working in Costa Rica. The close collaboration with the Museo Nacional de Costa Rica and the Instituto Nacional de Biodiversidad (INBio) continues.

Honduras: With support from the National Geographic Society, Garden botanists have collected plants on Pico Bonito in the Cordillera Nombre de Dios along the northern coast of Honduras. This peak has only rarely been climbed, and no previous botanical collections had been made there.

Panama: Botanical exploration of Panama, the first tropical country in which the Garden conducted field research, continues with collecting trips to remote areas.

Nicaragua: The Garden's Flora de Nicaragua project has three main goals: to conduct a thorough botanical inventory of the country, once the most poorly known in Central America; to establish a national herbarium; and to publish a written plant identification manual in Spanish. Since the project's inception in 1977, more than a quarter of a million specimens have been collected, the National Herbarium has been established, and the manual is nearing completion. Funding for the project has been provided by the National Science Foundation and the government of Nicaragua.

South America

Venezuela: A monumental 40-year inventory of the fascinating flora of the Guayana Highlands, or "Lost World" region, of southern Venezuela is nearing completion. Over 150 botanists outside the Missouri Botanical Garden have contributed to this project. The first two volumes were published in 1995 by Timber Press, and the remaining seven will be published by the Missouri Botanical Garden.

Colombia: The Garden continues to collaborate with Colombian colleagues at institutions throughout the country in a variety of plant collection efforts.

For several years the MacArthur Foundation has funded a project to establish permanent inventory plots in Amazonian Colombia and Peru and prepare mini-floras of these sites. All data from the plots in the Amacayacu National Park in Colombia have been analyzed and the flora will be completed in 1997.

Ecuador: In collaboration with the National Herbarium (QCNE) of the Ecuadorian Museum of Natural Sciences, the Garden is carrying out an intensive program of botanical inventories, development of the QCNE herbarium in Quito, and professional training of Ecuadorian botanists. A project to transfer digital information on plant species distribution from the Garden's TROPICOS database to Ecuador's newly created National Biodiversity Database, began in 1996. Another important project is the preparation of a Catalogue of the Vascular Plants of Ecuador; this collaborative effort of the Garden, the Ecuadorian Museum of Natural Sciences, the Pontificia Universidad Católica (Ecuador), and Aarhus University (Denmark) is funded by the Mellon Foundation.

Peru: The Peru project, funded by the Andrew W. Mellon and the John D. and Catherine T. MacArthur Foundations, is focused both on the completion of the Flora of Peru and on detailed floristic inventories of important biological reserves. An important product of the project, the *Catalogue of the Flowering Plants and Gymnosperms of Peru*, went into its second printing in 1996. A mini-flora of the Biological Reserves of Iquitos in Amazonian Peru is nearly completed, and field work is underway in other remote and botanically interesting regions.

Bolivia: The general floristic inventory of Bolivia, initiated in 1981, continues in close cooperation with a variety of Bolivian institutions. The Garden's most active project is an inventory of the Noel Kempff Mercado National Park in Santa Cruz, an area that is a rich mosaic of evergreen and deciduous forests, savanna grassland, and wetland marsh. The project has been funded by the National Science Foundation, USAID, and the Initiative for the Americas. A similar project is in progress at the Beni Biological Station, where the effect of grazing on biological diversity is being documented in ungrazed, lightly grazed, and heavily grazed savannas and forest islands.

Chile: The Garden is working with the University of Concepción, Chile, on a new Flora of Chile. Chile has a high degree of plant endemism in its biogeographically diverse regions. The new Flora revises a work completed in 1854 and is supported by institutions and foundations in many countries. The first of six volumes was published in 1994.

Argentina: The cooperation and exchange of information between the Missouri Botanical Garden and the National Council for Scientific and Technological Research of Argentina (CONICET) for the study of the flora of Argentina continues. Argentinean botanists are collaborating with the Garden on a computerized checklist of the vascular plants of Argentina. Garden personnel assisted in the establishment of an Internet link at the Darwinion Botanical Institute in Buenos Aires, with funding from the National Science Foundation. The Internet connection has benefited the checklist project by providing direct access to the Garden's TROPICOS botanical database.

Paraguay: Garden researchers are working on the Flora of Paraguay, an international cooperative program coordinated by the Conservatoire et Jardin Botaniques de Genève and jointly published by the Garden and Geneva. As part of the project, the Garden continues an active program of floristic inventory. Collaborative agreements aimed at strengthening local herbaria and building scientific capacity for botanical research have been signed with several institutions.

Natural Products Research

The Garden collects plant samples in tropical Africa, the island of Madagascar, Suriname, and various regions of the United States for pharmaceutical evaluation. The collecting activities in Africa and Madagascar are done under contract with the National Cancer Institute, which recently awarded a third five-year contract to the Garden. *Ancistrocladus korupensis*, a plant collected in Cameroon by a Garden scientist, has yielded three sets of new chemical compounds that show medicinal potential. In the U.S., the Garden has collected plants for analysis by Searle, a branch of the Monsanto Company. The work in Suriname is being done by a consortium of academic institutions and pharmaceutical companies, with financial support from the National Institutes of Health, the National Science Foundation, and USAID.

Africa

Ghana: With the assistance of the University of Ghana-Legon and BioResources International (a Ghanaian non-governmental organization), the Garden maintains an active collecting program in Ghana. The addition of a lab for on-site specimen processing has greatly facilitated collecting activities for contracts with the National Cancer Institute and Monsanto Company.

Gabon: In addition to collecting plant samples for the National Cancer Institute in Gabon since 1989, the Garden and the National Herbarium of Gabon have completed the field work for a checklist of the plants of the Lopé-Okanda Reserve in the central part of the country. The

continued on page 20

WebWatch

Visit the Garden on the World Wide Web:
http://www.mobot.org/

This fall the Garden's site on the World Wide Web attracted more than 100,000 "hits" per week. A "hit" describes each individual computer file that a user requests. The Garden's Website includes virtual tours of the grounds, up-to-date listings of plants in bloom, a calendar of events, galleries of images, information on education, horticulture, the library, and Garden research programs all over the world. Use of the Garden's Website has far exceeded expectations. During November, it recorded:

- 533,994 hits from 30,040 user visits
- An average of 17,817 hits per day
- An average of 1,228 users per weekday and 1,674 users on weekends
- At least 15 percent of all visits are from other countries:

Canada	624	Sweden	342	Germany	245
U.K.	404	Japan	260	France	215
Australia	368				

Visit TROPICOS on the World Wide Web:
http://mobot.mobot.org/pick/search/pick.html

Now you can use the TROPICOS database on the Web, the culmination of a two-year project. While the plant names information has been available on the Internet since 1994 as static text files, the new system allows Web users to gain access to the information directly from the TROPICOS database itself. In its first two months of operation, W3TROPICOS recorded 15,321 requests for information.

Home Gardening

LANDSCAPING WITH CONIFERS

Now that winter is here, we can perhaps best appreciate the evergreen conifers that enliven the bare landscape. With their wonderful array of shapes, colors, and sizes, conifers add a sense of permanence to any garden and satisfy many landscaping needs. Here we'll take a look at some of the interesting varieties that grow well in our climate.

Care and Culture

While the Austrian pine, *Pinus nigra*, and the Scotch pine, *Pinus sylvestris*, can have several disease and insect problems in our area, there are many other choices of conifers that thrive here and are culturally undemanding. They will tolerate various soil types, although good drainage is crucial. Maintaining healthy growing conditions is the very best way to avoid problems with insects and diseases for any plant.

Water

In the first year after planting evergreens, be very careful to keep the soil moist. After this initial period, most conifers can tolerate drier conditions, but they should go into winter with ample moisture, as they continue to transpire even when other plants are dormant. A yearly addition of organic mulch under the plant supplies sufficient fertilizer.

Pests and Diseases

Some conifers, such as the spruces, are prone to spider mites, but close observation can go a long way in controlling these and other pest problems. A forceful spray of water, on a regular basis, may be all you need to bring spider mites under control.

Some conifers are weakened by needle blights, which are common in the spring season if it is wet. Needle blight can be controlled by using a copper fungicide as soon as you observe it.

Selecting Plants

Winter is a good time to think about how to use conifers effectively in our home landscapes. It is essential to choose the right plant for the site and the role it is intended to play.

For instance, many of us like to create a sense of privacy around our homes, and evergreens can make a wonderful screen. If you plan ahead and choose a variety that will not overrun windows, walks, and doorways at maturity, regular pruning may not even be necessary.

Tall Screens and Hedges

Junipers are the most common choice for screening plants in our area. All can be sheared for height control and formality; left unpruned, they will have a more natural look. Among the many varieties that hold up well in our midwestern conditions, *Juniperus chinensis* 'Spartan', 'Spearmint', 'Hetz Columnar' and 'Keteeleri' are all commonly available. *Juniperus virginiana* 'Hillspire', a cultivar of our native species, is dark green and performs well also.

For tall hedges or screens, few conifers can compare with white pine, *Pinus strobus*, with its beautiful blue green needles that rustle softly in the wind. White pine is fast growing and needs a well drained soil. The narrower form, *P. strobus* 'Fastigiata', has upright branches and can be planted closer together to create a screen effect more quickly.

For an informal hedge, the Serbian spruce, *Picea omorika*, looks like a shorter version of the familiar Norway spruce. Serbian spruce endures the rigors of our climate and is becoming more popular and easier to find at local nurseries.

The graceful Canadian hemlock, *Tsuga canadensis*, can be formally pruned. It does well in shade, making it invaluable when you need an evergreen screen in a shady site.

Medium Height Plantings

For medium-sized hedges, *Juniperus virginiana* 'Burkii' is a beautiful blue needled cultivar that remains compact. For an outstanding choice, try the Sawara cypress, *Chamaecyparis pisifera* 'Filifera Nana', with its threadlike needles. While the natural shape looks best, it tolerates light shearing and can be kept at heights varying from three to eight feet.

Yews, *Taxus* species, are the most commonly planted hedges in this area, especially around foundations. 'Densiformis' yew is very tolerant of shearing or selective pruning. 'Nigra' has dark green foliage that looks beautiful in a snowy landscape. For a shaded, narrow space, try *Taxus × media* 'Beanpole', which will grow eight feet high but only two feet wide.

The taller varieties of arborvitae, *Thuja occidentalis*, tend to come apart in heavy snows, although the cultivar 'Smargrd' is more tolerant of winter and stays a nice green color all season long. For those who like golden plants, 'Sunkist' has yellow tipped needles. The cultivar 'DeGroot's Spire' is a good selection for narrow spaces; while it will attain a mature height of about ten feet, its maximum width is a skinny three feet. 'Techny', a dark green, broadly conical cultivar, achieves a mature height of about eight feet. 'Woodwardii', growing to four feet and globular in form, stands up sturdily in the snow and ice and is a good choice for smaller hedges.

Smaller Plants

Smaller conifers can be used as hedges when placed in the foreground to enhance larger specimens planted behind them. Maturing at three feet high and wide, *Chamaecyparis pisifera* 'Nikko Snow' with its ghostly white-tipped needles is most unusual. It grows best situated out of the wind.

Also low in stature, *Juniperus chinensis* 'Saybrook Gold' has beautiful yellow-tipped foliage that stays vibrant throughout the year. The steel blue needles of *J. squamata* 'Blue Star' dulls slightly in the winter, but it is still attractive and reliable.

Juniperus virginiana 'Grey Owl' is a wonderful plant for informal use. The stark gray coloration of its needles is unique. It grows very fast and can be counted on to fill in quickly, ultimately reaching about four feet in each direction.

Many dwarf cultivars of the Norway spruce, *Picea abies*, remain compact with constant color and a formal, stiff habit. The bird's nest spruce, 'Nidiformis', matures at about three by three feet, as do 'Pygmaea' and 'Little Gem'. The white spruce, *Picea glauca*, comes in a globular form called 'Cecelia' that would make an attractive specimen plant by a doorway.

Dwarfs and Groundcovers

Many dwarf cultivars of Canadian hemlock, *Tsuga canadensis*, exist and grow well in partial shade. They make nice companions for azaleas and rhododendrons on the shady side of the house. Two of the best are 'Gracilis', with a weeping form, and 'Albo-spicta', which has new growth of creamy white and grows to about four feet in height.

There are also many very small and cascading specimens to consider. Some are best planted in rock gardens to compliment other low growing plants. *Juniperus procumbens* 'Nana', with blue green needles, can be grown as a ground cover, loosely espaliered against a trellis, or gracefully cascading over a wall.

Many cultivars of *Picea glauca* 'Albertiana Glauca' are minute, such as 'Pixie', 'Rainbow's End', with yellow new growth, and 'Gnome', a tiny pyramid. *Pinus strobus* 'Sea Urchin', only a foot high, is a mop-topped miniature. *Thuja occidentalis* 'Tiny Tim' is shaped like a volleyball and can be grown as a foot high hedge or a single specimen.

Come to the Garden this winter to see many of these and other interesting conifers growing in the Heckman Rock Garden, the Kassabaum Dwarf Conifer Garden, and the Kemper Center gardens. Enjoying the evergreens at the Garden in winter can give you some great ideas for your own home landscape. The species and cultivars described above are only a sampling of the vast number of conifers available; nurseries will stock a wider selection as the demand increases.

— June Hutson,
horticultural coordinator,
Kemper Center for
Home Gardening

CLIFF WILLIS

CACTUS SOCIETY SUPPORTS THE GARDEN — In November the Henry Shaw Cactus Society made its annual donation to the Garden. The Society, currently celebrating its 52nd year, helps maintain the Garden's collection of rare and unusual desert plants in the greenhouses until funds can be raised to build a new Desert House. Shown presenting the check to Peter Raven are Josephine Goelzhauser (left) and Pat Thomann, president.

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9190
American Orchid Society (Mid-America Regional Judging Committee)	David Brown	727-2385
Belleville Area Rose Society	Dennis Nelson	(618) 233-4609
Bonsai Society of Greater St. Louis	*Peter Van Mier*	727-9191
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
Federated Garden Clubs of Missouri, Inc.	*June M. Kummer*	821-5075
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Ron Bilchik*	991-5008
Greater St. Louis Iris Society	*Jim Loveland*	349-4977
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*Bob Preis*	677-8805
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Diana Plahn*	965-5007
Rose Society of Greater St. Louis	*Robert W. Schneider*	524-3167
St. Louis Evening Herbalists	*Marilyn D. Miller*	481-0755
St. Louis Herb Society	*Barb Ottolini*	532-4644
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
St. Louis Hosta Society	*Mirko Bolanovich*	965-7471
St. Louis Water Garden Society	*Bonnie Alford*	962-2663
West County Daylily Club	*Roy Bohrer*	240-8780

Home Gardening

MEMBERS' ENTRY COURT GARDEN

CLIFF WILLIS

The Members' Entry Court welcomes all visitors to the William T. Kemper Center for Home Gardening. Designed to be a visually stunning entrance to the Kemper Center, the Entry Court requires plantings that remain colorful and attractive throughout the year.

As home gardeners know, it is a challenge to design elaborate displays that are surrounded by brick pavements and walls. In addition, the colors and textures of the plants in the Entry Court must enhance the building behind them and provide sequential bloom for continuous seasonal interest.

The large round bed in the center of the Entry Court contains plants that remain attractive throughout the year. River birches, *Betula nigra* 'Heritage', are planted in the center of the circle. Chosen for its adaptability and beauty in both summer and winter, this cultivar of a native tree is a good choice for home landscapes. An ornamental grass, *Pennisetum alopecuroides* 'Hameln', carpets the ground beneath the birches and makes a natural-looking companion. If left uncut, its soft brown foliage and plumed flower stalks rustle in the winter winds. In spring the grass is cut back to the ground, allowing fresh green foliage to emerge once again.

Plants in the Entry Court set off the dark brick walls of the Kemper Center with colorful foliage and blossoms in a range of purple and blue tones accented with vibrant oranges and yellows. Sequential plantings of annuals are displayed around the perimeter of the circular bed, chosen for continuous bloom throughout the growing season.

In early spring, tulips dominate the scene. *Tulipa* 'Keizerskroon' provides a cheery welcome in stripes of yellow and orange. The spring season continues with a single late-blooming variety, *Tulipa* 'Pink Surprise'. The tulips are followed in summer by a vibrant combination of bright orange *Portulaca* 'Sundial Orange' backed by purple *Salvia farinacea* 'Victoria'. The salvia is used as an annual in our climate.

Along the path to the Kemper Center entrance, *Liriope spicata* outlines a serpentine bed planted with annuals. Buttercup yellow tulips are the early-blooming *Tulipa* 'Golden Appledoorn' followed by the later-flowering 'Big Smile'. *Allium giganteum*, with its flower heads like large purple globes, adds dramatic beauty close to the building.

Summer plantings include more of the purple *Salvia farinacea* and the long-blooming, bright orange *Zinnia angustifolia*. This great bedding plant is virtually free of the diseases that plague large zinnias in our area.

The corner bed is planted with the delicate annual *Nierembergia hippomanica* 'Mont Blanc'. Mass planted for the best effect, the ferny foliage is set off by its clear white flowers with yellow centers. The window box facing the Entry Court overflows with a variety of New Guinea 'Timor' impatiens with large orange flowers. *Zinnia angustifolia* 'White Star', with the same carefree flowers as the orange variety, are planted in beds that wrap around the building.

A Kentucky yellowwood tree, *Cladrastus lutea*, is located in the turf area between the serpentine bed and the building. At maturity, yellowwood has beautiful smooth gray bark that may remind you of the skin of an elephant. A permanent low shrub, *Viburnum opulus* 'Nanum', is paired with *Pennisetum* 'Hameln', as both have mounded habits.

Growing azaleas in this climate depends on choosing the right cultivars. On either side of the path leading to the front door are Gable hybrid 'Herbert' azaleas, which produce lavender-purple flowers in early spring. This is one of the best azaleas for the St. Louis area.

Spiraea japonica 'Little Princess', situated against the building, flowers later in spring with bright pink flowers and continues blooming sporadically all summer. Rounding the corner of the bed around the building is *Hypericum calycinum*, a procumbent ground cover with bright yellow flowers. Its trailing stems and bold rounded foliage add textural variety.

Container plants are an important feature of the Entry Court that make it easy to add seasonal color. Large pots are placed around the circle, and hanging baskets accent the entrance portico. Plantings in the containers include *Perilla* and *Ipomoea* 'Blackie', both annuals with purple foliage, combined with violet impatiens, orange begonias, more New Guinea impatiens, and orange zinnias. In the fall, the annuals will be replaced with chrysanthemums to bring in the glorious changing colors of the autumn season.

— June Hutson

JANE AND WHITNEY HARRIS SECRET GARDEN

Traditionally a secret garden is hidden from outside view and often has a concealed entrance. At the Kemper Center, this charming design is represented by the Jane and Whitney Harris Secret Garden, a circular space enclosed by screening hedges. Its seclusion will be enhanced as the plantings mature.

Next spring, *Clematis montana* will be planted to billow over the elaborate arbor that spans the path to the Secret Garden. A double hedge of *Juniperus chinensis* 'Keteeleri' and *Tsuga canadensis*, which already encircles the garden on three sides, will be extended around the southern edge. Two large deciduous trees will be planted in the background to conceal the view beyond the garden as well. A cedar gate will be installed and planted with vines to help obscure the east entrance.

Upon entering the garden, visitors discover a circular lawn with a bronze sculpture of Sito, the Harris's cocker spaniel, engaged in a stand-off with a wary porcupine. The encircling hedges provide a deep green backdrop for beds planted with woody shrubs, perennials, bulbs, and annuals, all chosen in pastel shades of purple, violet, pink, and white. Plants in this garden are known to grow well in our climate and were selected to flower sequentially throughout the growing season.

Woody shrubs

Ornamental woody shrubs bloom with color in spring and also provide winter interest with their twiggy forms. Notable selections include *Styrax japonicus* 'Pink Chimes', selectively pruned to keep it in scale with the space. Mid-sized shrubs include salmony pink *Rhododendron* 'Girard's Mount St. Helen', silvery green *Caryopteris* × *cladonensis* 'Longwood Blue', and several cultivars of crepe myrtle, *Lagerstroemia indica*.

Bulbs

Anemones, violet tulips, pink lilies, quamash *Camassia leichtlinii* 'Blue Danube', and the hardy orchid *Bletilla striata* provide delightful color in spring. Plants with silvery foliage placed throughout the bed provide visual contrast and continuity. *Stachys byzantina* 'Helen von Stein' is a new cultivar that stands up to summer heat.

Perennials

Spring blooming starts with pasque flower, *Anemone vulgaris*. Purple coneflower, *Echinacea purpurea* 'Magnus', blooms from late spring into mid-summer. *Scabiosa columbaria* 'Butterfly Blue', *Veronica* × 'Sunny Border Blue', the New England aster, *Aster novae-angliae* 'Alma Potschke', and the Russian sage, *Perovskia atriplicifola*, all provide colorful bloom through the summer and into the fall.

Annuals

Annuals such as the fan flower, *Scaevola*, the stately *Nicotiana sylvestris*, *Nierembergia* × 'Mont Blanc', and the vertical *Verbena bonariensis* carry on the purple and white theme, blooming nonstop all summer. The waves of soft pastel color provided by the many plants within the Secret Garden should inspire visitors to try some of these selections in their own home gardens.

— *June Hutson*

CLIFF WILLIS

Sito and the porcupine delight visitors to the Secret Garden.

The Garden's boojum tree on display at Rancho Santa Ana Botanic Garden in Claremont, California.

Visiting the "Boojie"

THE GARDEN'S prized boojum tree is alive and well at Rancho Santa Ana Botanic Garden (RSABG) in Claremont, California, where it is on loan until the Garden can raise the funds to build a new Desert House. In fact, the "Boojie" has turned out to be a star attraction at its foster home since it was successfully transplanted (see the *Bulletin*, March/April 1995 and July/August 1995). Joseph Pillsbury, a Friend of RSABG, has prepared a brochure about the boojum for visitors and is even writing a children's story about the travels of this unique tree.

The boojum tree, *Fouquieria columnaris*, is extremely rare and prized by collectors. In nature the species is restricted to an arid region in Baja California, a peninsula in the Gulf of California, and a small area on the mainland coast of Sonora, Mexico. Boojum trees grow only a few centimeters a year and are extraordinarily long lived; the tallest specimens may be more than 350 years old.

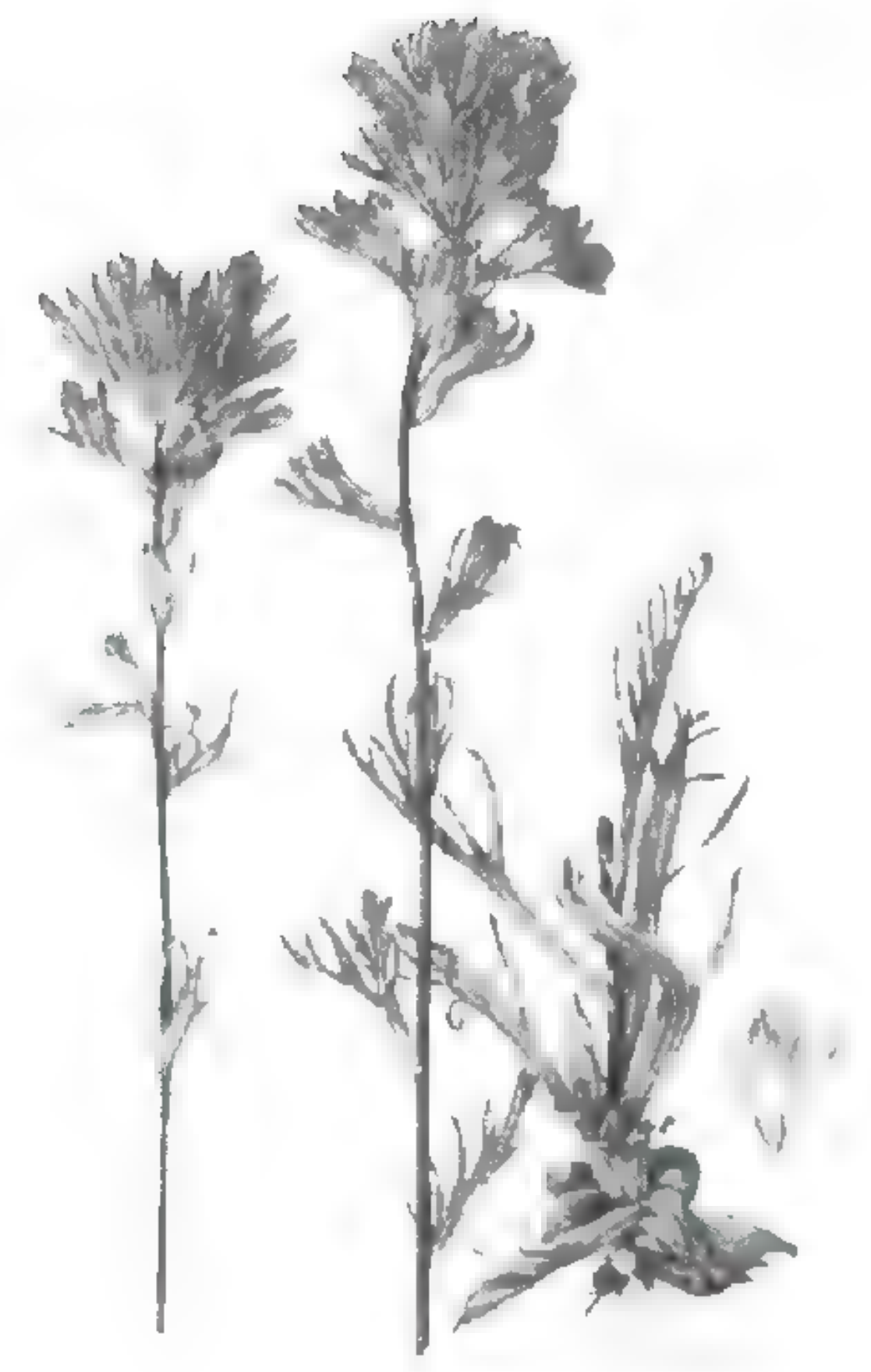
In Spanish, the plant is called "cirio" for its resemblance to wax altar candles. As specimens mature, they develop branches near the top that can resemble waving arms. The name "boojum" is taken from Lewis Carroll's "The Hunting of the Snark," in which a "boojum" is a mythical thing found in desolate, remote regions. Godfrey Sykes, an English botanist at the Desert Botanical Laboratory in Tucson, Arizona, coined the nickname for the tree during an expedition in the Sonoran Desert in 1922.

Boojums have a barren, thorny stalk that produces tiny leaves in mid-winter. These are quickly shed, but new leaves appear and are shed again during the annual cycle of rain and drought. The boojum flowers in July and August, producing clusters of white tubular flowers that are pollinated by flies, beetles, or hummingbirds. The trunk has a thick, resinous epidermal layer of bark that helps the plant conserve moisture. Bees, birds, and other animals may find shelter in the trunk.

Like the Missouri Botanical Garden, Rancho Santa Ana is a Participating Institution of the Center for Plant Conservation. Peter H. Raven said, "We are very grateful to the staff and volunteers of Rancho Santa Ana for their enthusiasm about our boojum tree and for taking such splendid care of it. I am delighted that so many people have an opportunity to see and learn about this very special plant while it is on display there."

Our thanks to the staff and volunteers of Rancho Santa Ana Botanic Garden for their assistance in preparing this story.

Calendar



January 9 — February 20

Baker Prairie Wildflowers

9 a.m. to 5 p.m. daily, Monsanto Hall. Exquisite watercolor portraits of 50 wild plants growing on Baker Prairie Natural Area in Boone County, Arkansas, created for the Arkansas Natural Heritage Commission and the Arkansas Arts Council. Botanical artist Kate Nessler of Kingston, Arkansas, winner of three gold medals from England's Royal Horticultural Society, painted the wildflowers in 1993-94. Free with Garden admission.

January 31 Friday

Members' Preview: Orchid Show

5 to 8 p.m., Ridgway Center. Entertainment, cash bar. Dinner buffet is available in the Gardenview Restaurant for $10.95 per person; no reservations.

February 1 — March 30 The Annual Orchid Show

"Legends of the Orchid People"

9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. This year the popular annual display recreates a tropical rain forest populated with life-size topiary figures. The mannequins represent forest dwellers who live in harmony with their environment and seek to preserve it. The display features colorful plants from the Garden's vast orchid collection of more than 10,000 plants, including many rare and historic species. Flower show admission: $2 adults, $1 seniors age 65 and over, free to children age 12 and under, and free to Garden members.

Special Winter Schedules

- Trams will operate on a reduced schedule from January 1 through the end of February. Trams will leave the Ridgway Center at 10 a.m., 10:30 a.m., 2 p.m., and 2:30 p.m.
- Free Walking Tours will continue to be offered daily by the Garden Guides this winter. Meet at the Ticket Counter at 1 p.m.
- Tower Grove House is closed during the month of January.

February 1 — 12

"PhotoSynthesis" Exhibit

9 a.m. to 5 p.m. daily, Grigg Hall. Ten portraits by St. Louis photographer Colin Miller, owner of Strauss Peyton Studio. The photographs portray the Garden's mission by showing staff members immersed in their work, from teaching to gardening to research. Mr. Miller, who donated his time and talent to create the exhibit, says, "Every time I go to the Garden, I find something new. The photos are a way for me to give something back." Free with Garden admission.

February 1 & 2
Saturday and Sunday

Missouri Orchid Society Show and Sale

9 a.m. to 5 p.m. daily, Beaumont Room. Free with Garden admission.

February 8 Saturday

"Mississippi Mamas"

2 p.m., Shoenberg Auditorium. In honor of Black History Month, Pamoja Theatre Workshop presents a stage performance of monologues and music of the civil rights era. Seating is on a first-come, first-served basis. At 12:30 p.m. a special tour, "Plants of Africa," will be featured: call (314) 577-5125 for tour reservations. Performance and tour are free with Garden admission. Admission to the Orchid Show is also free on Saturday afternoon to people attending the performance of "Mississippi Mamas."

CLIFF WILL

February 23 Sunday

Celebrate the Gospel

3 to 5 p.m., Shoenberg Auditorium. The Garden presents the seventh annual concert in honor of Black History Month, with performances by vocalist Jared Hennings and "Silhouette" with

Jeff Hardin. Spotlighting the recent award-winners Prince of Peace Missionary Baptist Church Choir and St. Alphonsus Rock Church Choir. Trish Gregory from Z100 Radio will serve as master of ceremonies. Seating is on a first-come, first-served basis. At 1:30 p.m. a special tour, "Plants of the Bible," will be featured: call (314) 577-5125 for tour reservations. Performance and tour are free with Garden admission. Admission to the Orchid Show is also free on Saturday afternoon to people attending the performance of "Celebrate the Gospel."

Coming March 14 — June 10

"Witness: Endangered Species of North America"

Photographs by Susan Middleton and David Liittschwager

Photographs of endangered plants and animals bridges art and science to capture poignant visions of creatures poised on the brink of extinction. Watch for a list of events planned in conjunction with the exhibit in the March issue of the *Bulletin*. "Witness" is co-sponsored in St. Louis by the Missouri Department of Conservation and Monsanto Fund.

Members' Days

January 15 Wednesday

"English and French Precedents for the Design Features of Tower Grove Park"

11 a.m., Shoenberg Auditorium. Join John Karel, director of Tower Grove Park, for a slide presentation on his research in England and France over a three-year period. Seating is on a first-come, first-served basis. Free, for members only.

February 25 Tuesday

"Gardens of St. Louis"

11 a.m., Shoenberg Auditorium. Clarissa Start, columnist for the St. Louis Post-Dispatch, offers a special slide presentation of some of the beautiful St. Louis gardens that she has visited and written about during the past year. Seating is on a first-come, first-served basis. Free, for members only.

GARDEN GATE SHOP

All proceeds from the Garden Gate Shop benefit the Missouri Botanical Garden. The Shop will close for inventory on January 7 at 4 p.m.

Only Available January 1 — March 31

A Silver Anniversary Special Event

Portmeirion's beloved "Botanic Garden" pattern celebrates its 25th anniversary. Help us celebrate with a special 25 percent discount on selected pieces, just for Garden members. This includes members' regular ten percent discount.

January 31 & February 1 Friday & Saturday

Book Signing

Bill Summers, author of the new edition of *Missouri Orchids* from the Missouri Department of Conservation, will be signing copies of the book during the Members' Preview of the Orchid Show on Friday, 5 to 8 p.m., and during the public opening on Saturday, 11 a.m. to 3 p.m. Books will be available for purchase, $5.50 per copy.

January 30 — March 30

Orchid Sale

During the annual orchid show, members receive an additional ten percent off for a total discount of 20 percent on all orchid merchandise, including living and silk orchids, supplies for growing orchids, prints, cards, ready-to-wear, jewelry, books, and more.

February 14 Friday

Valentine's Day

Come to the Shop to find something truly special for your special someone. Featuring beautiful blooming plants, lovely arrangements of real, dried, or silk flowers, ivy heart topiaries, cherubs for indoors or outdoors, candies and sweets, Valentine cards, and more.

January 15 Members' Day

"Tower Grove Park"

Members receive an additional five percent off all books on local topics, plus St. Louis Wicker dolls and all Victorian gifts and paper products, for a total fifteen percent discount.

February 25 Members' Day

"Gardens of St. Louis"

Members receive an additional five percent discount on all seeds, seed kits, peat pots, soil, and "garden starters" for a total 15 percent discount.

February 22 Saturday

New! The MBG Cookbook

Come in and sample some of the recipes from a delightful cookbook featuring recipes by Garden staff and volunteers. Cindy Aderman, who illustrated the cookbook, will be signing books in the Garden Gate Shop between 11 a.m. and 3 p.m. Books will be available for purchase, $14.95.

New in the Shop

- A lovely selection of accent rugs in botanical motifs. Rugs are three feet, three inches by four feet, eight inches, $75.
- Beautiful clocks for the wall, desk, or mantle, of cherry wood and aluminum with a gardening theme face, $55 to $65.

And Old Favorites

- Buckeye Bean Soup mixes in a great selection of flavors, $4.75 per package
- MBG sweatshirts

Just Reduced –

Silk Flowering Bulbs

Gather a rainbow of flowering bulb plants in silk. Many varieties, priced to sell.

Special Gift Baskets

To order a custom gift basket, call Christa at 577-5137 or Jill at 577-5152. For a nominal charge, the Shop will arrange delivery for your gifts.

New Returns Policy

The Shop has announced that it must charge a restocking fee on returns of fountains, statuary, furniture, bonsai, and orchids. The fee will also be charged on returns of chimes or bells costing over $150, and any indoor gift over $300. The fee will be ten percent of the purchase price and will cover labor and other costs associated with processing these transactions. No fee will be charged on merchandise returned as defective.

Members

1997 Members' Days

Join us for each of these special events just for Garden members. Members Days for July through December will be announced later:

January 15
"Design of Tower Grove Park," slide presentation by John Karel

February 25
"Gardens of St. Louis," slide presentation by Clarissa Start

March 15
Gardening Lecture by a member of the Garden's horticulture staff

April 30
Garden Greenhouse Plant Sale

May 20
Herb Society Lecture and Herb Garden Tour

June 20
Big Band Concert

Coming Up — March 5, 1997

Horticulture Open House: Attention Gardeners!

5:30 to 7:30 p.m., Beaumont Room. The Horticulture Division hosts an open house to recruit new volunteers interested in doing planting, pruning, mulching, and general maintenance. Light refreshments will be served, and horticulture staff supervisors will be on hand to discuss the opportunities for volunteers. Applicants should be available at least three hours during the day, one day a week, Monday through Friday. To make a reservation for the open house or for more information about volunteering at the Garden, please call Jeanne McGilligan at (314) 577-5187.

January 25 & February 22

Volunteers Needed for Ecological Restoration at Shaw Arboretum

9 a.m. to 4 p.m. both Sundays. Work parties will help remove invasive cedars and do controlled burning to restore the natural habitat of dolomite glades. Volunteers should bring a sack lunch and dress in layers appropriate for hard outdoor work. Hot beverages and heated shelter will be provided. Please call Shaw Arboretum at (314) 451-3512 no later than noon on the Friday preceding the work date.

Tower Grove House News

Thank You to Holiday Decorators

Our very special appreciation goes to the individuals and organizations below, who decorated Tower Grove House in Victorian splendor for the holidays:

Four Winds Garden Club
Kirkwood Herb Guild
Missouri Botanical Garden Members' Board
St. Louis Herb Society
Southwoods Garden Club of Shrewsbury
Tower Grove House Auxiliary
Tower Grove House Historical Committee
Tower Grove House staff and volunteers
Webster Groves Garden Club #4

KRISTEN PETERSON

Margaret Oberheide (left) and her husband Fred with Deanne Lane of KSDK, who presented the award.

Margaret Grigg Oberheide Receives Outstanding Philanthropist Award

Margaret Grigg Oberheide, a Trustee of the Garden, was honored at the 17th Annual Philanthropy Awards Celebration of the National Society of Fund Raising Executives (NSFRE) at a luncheon at the Ritz-Carlton on December 2, 1996. Mrs. Oberheide received the Outstanding Philanthropist Award, given to an individual who has demonstrated exceptional generosity through direct financial support and whose outstanding civic leadership has encouraged and motivated other individuals in the community. The award was presented by Deanne Lane of KSDK NewsChannel 5.

For nearly 50 years Mrs. Oberheide has supported the cultural life of St. Louis as a generous donor and tireless volunteer for the Garden, the Missouri Historical Society, the Saint Louis Art Museum, the St. Louis Symphony Society, and Opera Theatre of St. Louis, among many others. She has been a Trustee of the Garden since 1984 and was named Trustee Emeritus in 1992. Her gifts to the Garden include Grigg Hall, the entrance to the Ridgway Center given in memory of her late husband Hamblett Charles Grigg, and the Margaret Grigg Nanjing Friendship Garden, given in memory of her parents and dedicated in 1995.

Patricia Arnold, interim director of development, said, "We took great pleasure in co-nominating Mrs. Oberheide for this distinguished award. It is a delight to work with her, and we are very grateful for her extraordinary generosity."

1997
Missouri Botanical Garden Travel

Natural History Adventures

Thailand: A Southeast Asian Paradise
February 8 – 23 • $3,093 from Los Angeles

Venezuela: Land of the Lost World
March 2 – 11 • $3,198 from Miami

Coastal Spain and the Canary Islands
April 11 – 28 • $4,815 from Madrid

The Nature Place: Colorado Rockies
July 5 - 11 • $ 825/Adults, $550/Children

Galapagos: Darwin's Enchanted Isles
August 6 – 16 • $3,398 from Miami

Kenya: A Grand Safari
October 19 – 31 • $4,385 from St. Louis

Please call (314) 577-9506 for additional information.

ECO-ACT, an innovative environmental education program developed at the Garden, has been bringing together St. Louis students from diverse backgrounds since 1981. ECO-ACT has been recognized by the National Science Teachers Association as a national model in its Search for Excellence in Science Education.

ECO-ACT:

Environmental Leadership in Action

"The students become friends during the year. That's one of the most important things."

Each year about 60 juniors and seniors from public and private high schools — four in the city and four in the county — enroll for a year-long program to investigate environmental issues, develop leadership and teamwork skills, and learn how to teach younger students about the environment. The high school students receive course credit for their work while sharing their knowledge and enthusiasm with 650 children at ten elementary schools.

The program starts with a three-week summer training session investigating urban environmental issues and developing teaching skills. The students take a four-day canoe trip on the upper Meramec River that includes caving, aquatic ecology, and a lot of just plain fun. The group spends weekends outdoors in the fall and spring, too. Maried Swapp, the Garden's ECO-ACT coordinator, says, "All of these activities teach responsibility and leadership, and help students learn teamwork. And they become friends during the year; that's one of the most important things."

Once the school year begins, the high school students attend monthly workshops at the Garden that focus on developing teaching skills, using activities that children will enjoy. The ECO-ACT students are divided into teams and assigned to elementary schools in the community, where they work with classes for an hour each week, leading programs about food chains, habitats, biological communities, natural resources, pollution, waste treatment, and conservation.

In the spring of the school year, ECO-ACT students are required to do a research survey project that involves interviewing professionals, developing a questionnaire, and compiling and presenting the results. After completing their surveys, the students design a four-week environmental action project for their elementary classes, using their students' suggestions. Classes may collect aluminum cans for recycling, start a school garden, or plant trees. Some projects include writing letters to government agencies.

The influence of ECO-ACT can be far-reaching. Douglas Sutherland, an ECO-ACT instructor in the Garden's Education Division, was a former ECO-ACT student. Doug says, "ECO-ACT gave me a direction and goals for my future, and I like sharing that same discipline with others. I love being part of a program that spreads knowledge and understanding in an educational and environmental setting."

PHOTOS BY CLIFF WILLIS

Above: ECO-ACT students Tanya O'Kain, Linnet Early, and Keith Claxton practice problem solving while working as a team.

Left: Linnet Early and Herman Bond learn an activity about mapping species distribution, which they will later teach in the classroom.

Left: Maureen Meyer and her fourth grade students investigate the pond habitat in the English Woodland Garden.

Below: Holly Dunning leads a class field trip activity in the Climatron.

Sign Language

AN amazing variety of plants can be found growing at the Missouri Botanical Garden. Although many are well known garden plants, others are unusual in cultivation. Visitors can learn about our plants by reading the identification labels on or near them.

What kinds of information will you find on plant labels?

Common Names

Most people refer to plants by using a common name. For horticulturists, deciding on a common name is extremely tricky, because there are no guidelines on how common names are created and used.

Luckily, some plants have a single common name that is widely recognized. Others, however, have two or more common names that may vary from region to region, sometimes in different languages. The leading plant taxonomy reference for the state of Texas, for example, gives no fewer than twelve common names for American beautyberry, *Callicarpa americana*, in the verbena family, Verbenaceae.

Sometimes the same common name can refer to a number of very different plants. "Dusty miller" is used for several members of the daisy family, Asteraceae, as well as a species in the pink family, Caryophyllaceae.

At other times, a common name may apply in general to all species of a genus, or at least to more than one. And of course, some plants just do not seem to have any common name attached to them.

So, how do we taxonomists decide on a common name? We consult horticulture resources and then use our best judgment. After all that, though, our common name might not be the same one you are familiar with. If the plant just does not seem to have a common name, we use the first part of its scientific name, the genus name.

Scientific Names

A plant's scientific, or species, name consists of two words in Latin, the genus name followed by a specific "epithet." This binomial system was introduced by the Swedish botanist Carl Linneaus in 1753. Examples of scientific names include *Iris virginica*, southern blue flag, *Hemerocallis fulva*, orange daylily, and *Echinacea tennesseensis*, Tennessee coneflower. On labels, a plant's genus name is always shown, but sometimes a specific epithet is omitted.

Variations Within a Species

Based on differences in plants' features, botanists sometimes make distinctions between populations of plants within a species and give names to these variations. That is why you will sometimes see the names of these smaller units, which include subspecies, abbreviated as "subsp."; variety, abbreviated as "var."; or form, abbreviated as "f." Examples include *Oenothera biennis* subsp. *centralis*, *Iris virginica* var. *shrevei*, and *Cercis canadensis* f. *alba*.

Cultivars

Some labels have a name enclosed within single quotation marks, such as the name of the tulip *Tulipa* 'Golden Apeldoorn'. This is the cultivar name. A cultivar is a plant that has been produced by people, usually through hybridization or selection for some trait.

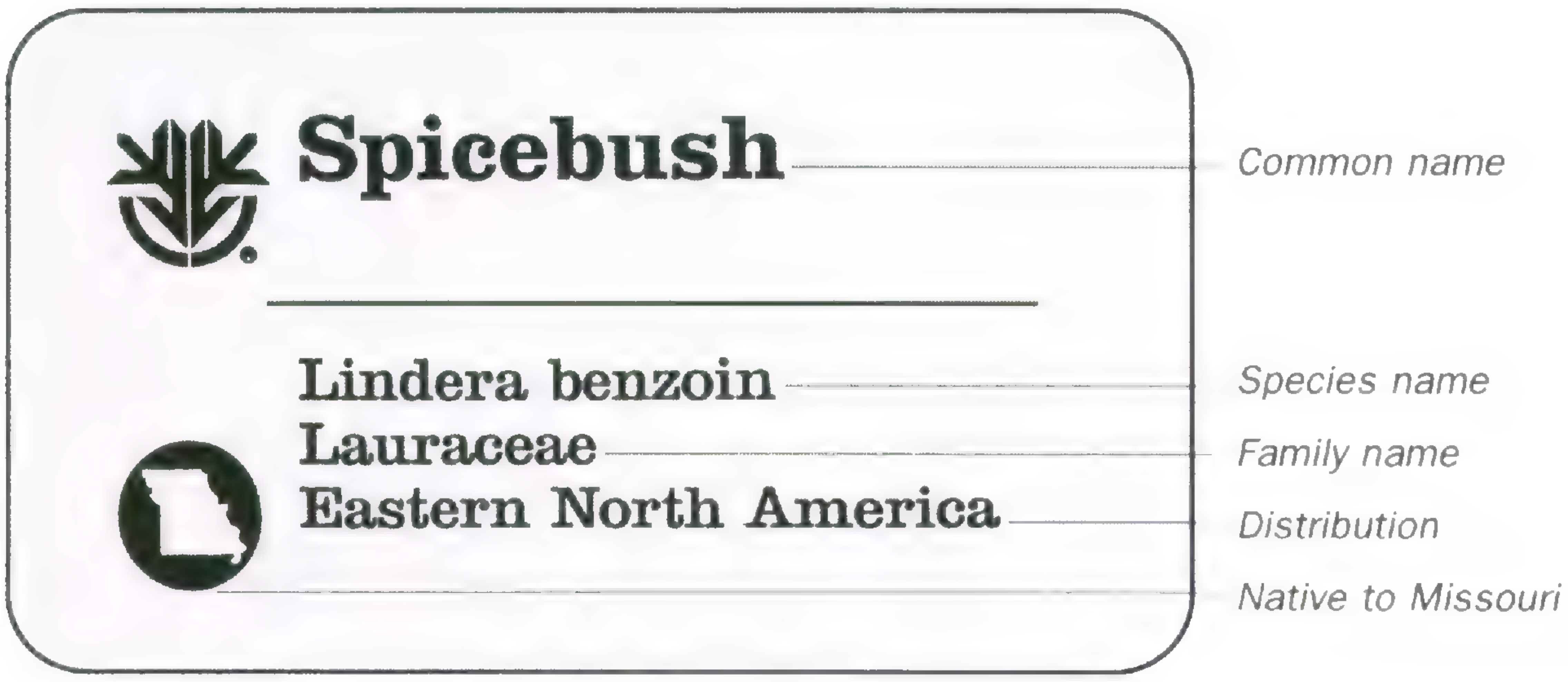
As opposed to the common name, each plant species can have only one correct scientific name. This is its genus name plus specific epithet. The same holds true for its cultivar name. The use of scientific names is governed by internationally accepted rules, and these names are recognized everywhere in the world. For a variety of reasons, though, scientific names occasionally have to be changed. Watch the *Bulletin* for a future story on scientific nomenclature.

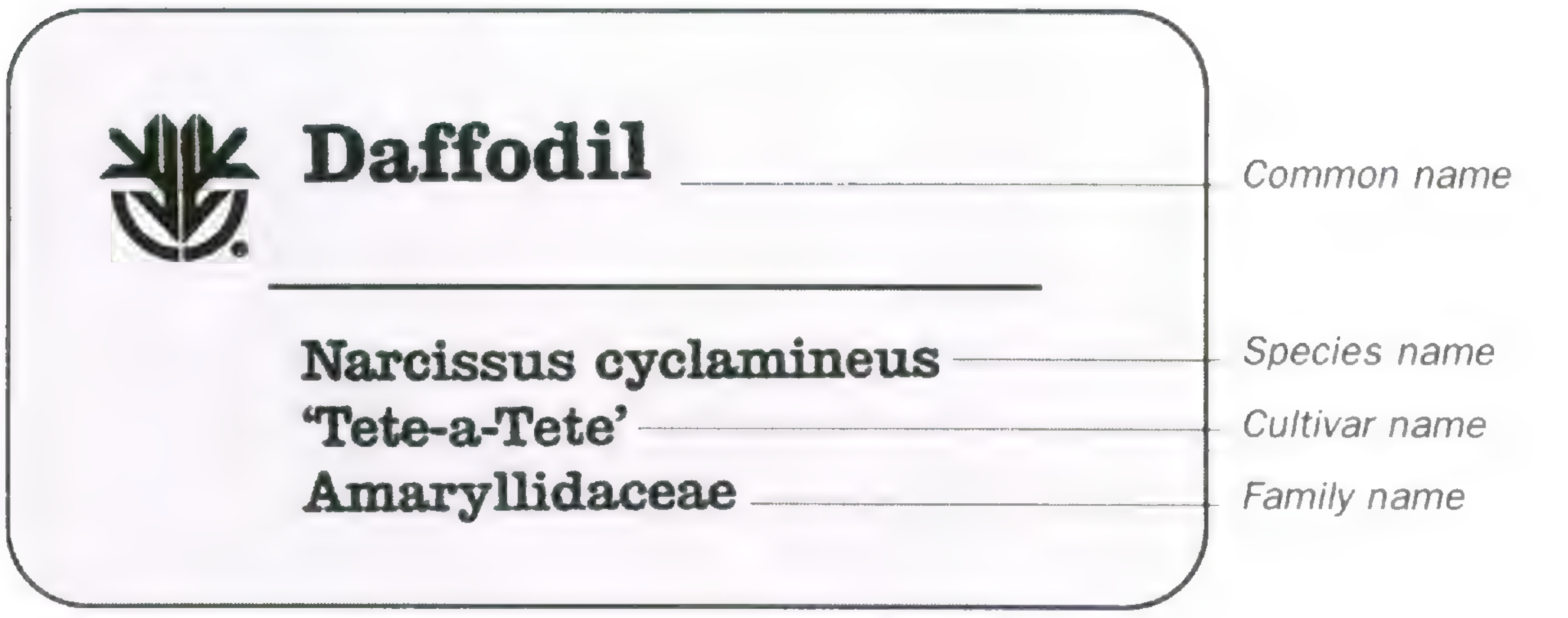
Family Names

Below the scientific name comes the plant's family assignment. A family is comprised of one or more genera (the plural of the word genus), all sharing one or more features in common. In botany, the family name always ends in the same five letters: "aceae." Some common examples include the aster family, Asteraceae, the bean family, Fabaceae, the lily family, Liliaceae, the orchid family, Orchidaceae, the rose family, Rosaceae, the mint family, Lamiaceae, and so on.

Distribution

The final line on many labels includes information on where the plant occurs naturally. Distribution does not include places where the plant has been introduced outside its native range. Defining the natural distribution of a species is sometimes difficult because different references may not always provide the same





information. Labels for cultivars do not give data on distribution.

Symbols

In addition to the Garden's logo, you will sometimes find one or more additional symbols on a label. A map of the state of Missouri indicates the species is native here. A panda means the species is rare or endangered in its natural habitat. The logo of the Center for Plant Conservation (CPC) on a few story signs denotes plants cared for by the Garden as part of our cooperative activities with the CPC.

Other Garden Labels

Labels in the gardens of the Kemper Center for Home Gardening provide all of the data outlined above. In addition, though, they display a system of symbols that give information on the management and care of plants (see the *Bulletin*, May/June 1996).

Hundreds of daylilies are displayed in the Jenkins Daylily Garden. All of these plants are of the genus *Hemerocallis* in the family Liliaceae. In order to avoid being repetitious, each label in this garden includes only the species name if appropriate, the cultivar name, the name(s) of the person(s) creating the cultivar, and perhaps an award category, if appropriate.

Take time to study a plant's label — it contains a lot of information. If you're intrigued by a plant, you can do research to find out more about it, or look for it at a nursery.

— Alan W. Lievens, M.D., Ph.D.
MBG horticultural taxonomist

CLIFF WILLIS

25 Years at the Garden

Walter R. Behrendt

THERE aren't many people on the staff who can claim that they have driven their cars across the Garden, but when Walt Behrendt began working for the Horticulture Division, staff routinely drove in and parked on the grounds. Of course, there weren't nearly as many people on staff 25 years ago.

When Walt began work at the Garden on November 1, 1971, under the supervision of Alfred Saxdal, there were just three people on the outdoor horticulture staff. Walt recalls how they referred to the area where the Japanese Garden is today as the "back forty," which was mowed just two or three times a year.

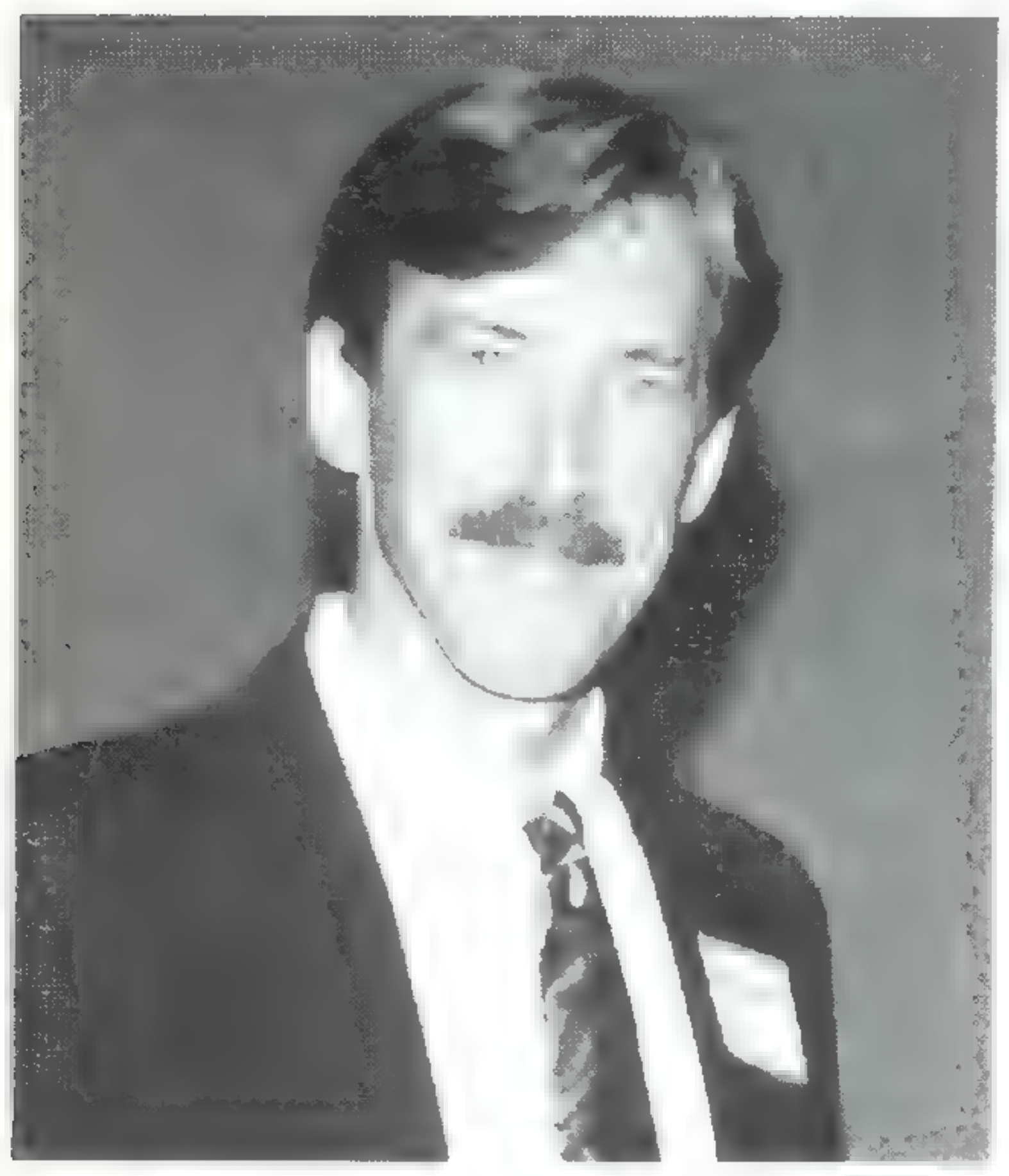
Walt has watched the Garden grow. He helped to plant the Lehmann Rose Garden and the English Woodland Garden, and handled the landscaping around the Ridgway Center, including the Azalea-Rhododendron Garden, which he tended for many years. During the renovation of the Climatron, Walt and his crew balled and burlapped all the trees and put in 1500 cubic feet of soil.

As our resident expert on vegetable gardening, Walt used to plant and maintain the Demonstration Vegetable Garden that grew near the Kemper Center area. Currently he works in vegetable, fruit, and experimental displays in the Kemper Center demonstration gardens.

Walt grew up near Chicago and graduated from the University of Illinois in 1968 with a B.S. in ornamental horticulture and floriculture. His family had moved to St. Louis, so Walt came here too. He worked for a local greenhouse for a few months, then one day he walked into the Garden and asked for a job. He and his wife met on the staff and were married in the Linnean House in 1982. Today they have two sons, and Walt is active in the Boy Scouts. He is also an avid fisherman, when he isn't gardening.

Over the years he has written two articles for the *Bulletin* and one for the journal of the American Rhododendron Society. He also serves as a reviewer and expert consultant for other garden writers and publications.

Walt has made lasting contributions to the beautiful displays at the Garden in the past 25 years. He began experimenting with rhododendrons at home and with encouragement from the late Alan Godlewski, director of horticulture, Walt began propagating plants for the Garden's display as well. Today the Azalea-Rhododendron Garden includes many of Walt's plants.



In Memoriam

Christopher Brown

STAFF AND FRIENDS were saddened by the recent death of Christopher Brown, who was honored in 1994 as the Garden's Science Educator of the Year. Mr. Brown, who was science supervisor at Ferguson-Florissant School District, worked closely with the Garden's Education Division for seven years as a lead teacher for the "Ecology for Teachers" summer training course. He also was one of the lead instructors and designers of the "Ecology Through Inquiry" course offered at the Garden during the past two summers and worked with the Garden to develop curriculum for the Public Garden-School Partnerships for Improved Science Education.

In addition to all these projects with the Garden, Mr. Brown served as director of the Little Creek Nature Center, which is owned and operated by the Ferguson-Florissant School District. He was one of the 100 national finalists for the Teacher in Space program and was active in space education as well as biology and ecology.

Dr. Larry DeBuhr, the Garden's director of education, said, "Chris made an outstanding contribution to science education in the St. Louis community. We were proud to have him as a partner and as a friend, and we extend our deepest sympathy to his family."

Barbara Addelson, manager of science outreach for the Garden, said, "Chris was an inspiration to all of us who worked with him. He had a great love of ecology and was a wonderful role model as a science educator. He was irreplacable, and we all miss him."

CLIFF WILLIS

Robert Magill (right) and Henk van der Werff in the herbarium.

Robert E. Magill Is New Director of Research

DR. Robert E. Magill has been named director of the Research Division, effective January 1, 1997. Dr. Peter H. Raven made the announcement on November 18, 1996. Magill will succeed Dr. Warren D. Stevens, who has served as director of research since 1991. Stevens will continue his botanical research and help coordinate the Garden's Latin American programs.

Raven also announced that as of January 1, Dr. Henk van der Werff will become deputy director of research. Dr. Michael Grayum will become editor of the *Annals of the Missouri Botanical Garden*, a responsibility held by van der Werff since 1991.

Dr. Magill has been a member of the Research Division since 1982, but he has been associated with the Garden much longer than that. He earned his doctorate at Texas A & M University in 1975, followed by a two-year postdoctoral fellowship here. In 1976 he went to South Africa, as assistant curator at the Botanical Research Institute in Pretoria, and returned to the Garden in 1982. From 1989 to 1991 he was head of the Research Division's Department of Bryophytes, and since 1991 he has been head of the Department of Floristics.

Dr. Magill is a bryologist, a specialist in mosses and liverworts. He has collected mosses in many regions of the world, including the United States, Mexico, southern and central Africa, Madagascar, China, Kazakhstan, and the Russian Far East. He has published more than 60 scientific papers.

Dr. Magill also is one of the principal architects of the Garden's computer database, TROPICOS, which is the largest and most widely used botanical database in the world. He said, "The Garden has taken the lead in using computers to share botanical information globally, and I anticipate our role in that area will continue to grow."

Like Magill, Henk van der Werff also joined the Research Division in 1982. Before coming to the Garden, he spent a year in charge of herbarium management at the University of California, Los Angeles, and from 1978 to 1979 he was director of the Flora Falcon Project stationed in Coro, Venezuela. He received his Ph.D. in 1978 at the State University of Utrecht in The Netherlands, his native country.

Dr. van der Werff specializes in the Lauraceae, an important plant family little known to scientists. Dr. van der Werff is one of a very few botanists worldwide who study the family, which includes avocados and cinnamon, and he is the leading expert in neotropical Lauraceae. Since 1991 he has also served as head of the Research Division's Department of Taxonomy and as editor of the *Annals of the Missouri Botanical Garden*.

Dr. Magill said, "This rotation of administrative responsibilities in the Research Division will be of great benefit to all of us. It also will allow Dr. Stevens and Dr. van der Werff to give much more of their time to research for the next five years."

Dr. Raven paid tribute to Dr. Stevens's service as director of research, saying, "We deeply appreciate Doug's wonderful contribution in organizing and strengthening the structure of the Research Division during the past five years. He organized our projects in a very goal-oriented, professional way, with care and concern for the interests and abilities of individuals. We are delighted that he will continue to serve as coordinator of our Latin American programs, because he has come to play a very important role in stimulating the development of botanical science in these countries."

Dr. Stevens joined the staff as B.A. Krukoff Curator of Central American Botany in 1977 after receiving his Ph.D. from Michigan State University in 1976. He was immediately dispatched to Nicaragua, where he worked until 1986, establishing a National Herbarium, training a group of young Nicaraguan botanists, and overseeing the first intensive botanical collections there. He continues to work toward the publication of a flora of Nicaragua, which is nearing completion. In 1988 Dr. Stevens became head of the Research Department, and he has served as director of the division for the past five years.

New Division of Botanical Informatics Is Created

CLIFF WILLIS

John Schnase in his office

The Garden has consolidated its scientific computing activities into the Division of Botanical Informatics (DBI). Dr. John L. Schnase, who directed the Garden's Center for

continued on next page

NEW DIVISION *continued*

Botanical Informatics (CBI) as a research associate since 1994, was named director of the new division. The Department of Botanical Information Management (BIM), which maintains the Garden's TROPICOS database, became part of DBI on January 1, 1997.

"Informatics" is a term coined to describe new ways of using computers to help people collaborate on big projects and solve complex problems. Dr. Schnase has an extensive background in developing advanced computer technology for practical use in both the public and private sectors.

Dr. Schnase said, "Using Internet-based electronic publishing, we recently made the newest volume of *Flora of North America* available on the World Wide Web eight months before the actual books will be ready (http://www.fna.org). We're also designing new ways to streamline the editorial process for the Flora of North America and Flora of China, helping scientists located all over the world use the Internet to communicate more efficiently. By combining these efforts with BIM's expertise in managing TROPICOS, the Garden will significantly strengthen its research program."

Looking beyond the Garden, TROPICOS recently became available on the World Wide Web, the primary interface for Internet users (http://www.mobot.org). Dr. Schnase's division is developing new tools for the Web that will make TROPICOS easier for non-botanists to use and increase the Garden's ability to share and acquire information with other users worldwide.

Dr. Schnase came to the Garden from Washington University, where he was director of the Advanced Technology Group for the School of Medicine Library and a senior research associate in the Department of Computer Science. He received his Ph.D. in computer science from Texas A&M University in 1992 and also holds a master's degree in biology and biochemistry. He has consulted on projects for the U. S. Environmental Protection Agency, NASA, and private industry, and serves on several National Science Foundation committees dealing with biological information. ■

Herbarium Recovers Historic Specimens

DURING the last three years, the Garden has succeeded in recovering more than 62,000 herbarium specimens that had been sent or sold to four institutions over 40 years ago.

During the period 1948-1963, a minimum of 127,000 herbarium specimens were deaccessioned from the Garden's collection and sent to at least 48 institutions around the world under the direction of Dr. Robert E. Woodson, who was curator of the herbarium during that period. At that time the herbarium had about 1.5 million specimens housed in the Administration Building, where the collection was badly overcrowded. To make room for new collections, Woodson undertook a major reorganization of the herbarium, including the distribution of specimens he considered duplicates or superfluous.

"Woodson was a gifted and enthusiastic teacher," said Dr. James Solomon, curator of the herbarium, "but some of his decisions about the herbarium collection were controversial. Fortunately today we are not faced with the difficulties he contended with 40 years ago. It is wonderful that today we have the resources, including our new research facility, to keep our collection as complete and accessible as possible."

Keeping track of individual herbarium specimens has always been difficult at best, although computerization has vastly improved the process. In the past, record-keeping methods varied widely, and often records were incomplete or lost. Locating the Garden's specimens has been an enormous task, requiring the cooperation of curators at dozens of institutions.

Dr. Solomon said, "We are extremely grateful for the help of curators at the institutions that received specimens for providing information from their archives. We owe a special debt of gratitude to Anita Cholewa at the University of Minnesota, Hugh Iltis at the University of Wisconsin, Kevin Nixon at the Bailey Hortorium, and Douglas Warren at Principia College, for agreeing to return specimens their institutions received and cared for during the past four decades."

Three New Participating Institutions Join CPC

IN OCTOBER, 1996, the Center for Plant Conservation(CPC) welcomed the Chicago Botanic Garden in Glencoe, Illinois, The Morton Arboretum in Lisle, Illinois, and Santa Barbara Botanic Garden in Santa Barbara, California into its Network of Participating Institutions. This brings the total in the CPC consortium to 28 gardens and arboreta. The CPC national headquarters is located at the Missouri Botanical Garden.

"We are thrilled to welcome these institutions into our network. They will greatly enhance and strengthen our overall rare plant conservation program," said Dr. Brien Meilleur, CPC president and executive director.

The Participating Institutions collect, grow, and maintain a living collection of 500 of the nation's rarest plants. The seeds and cultivated plants that comprise this collection are a source of genetic material for research, education, and possible economic development. The CPC works to preserve the U.S. flora through habitat protection, management, and restoration. The network's collective goal is to remove the rare plants of the United States from danger and to restore them to secure habitats.

CPC Receives Environmental Excellence Award

The Center for Plant Conservation received the first Denver Botanic Gardens Medal at a ceremony hosted by the Denver Botanic Gardens on Wednesday, October 2. The award honors eminent contributions and leadership in the area of plant stewardship and the environment.

"It is an honor to accept this wonderful award on behalf of CPC and to be seen as leaders in conserving rare plants in our country," said Dr. Brien Meilleur.

CLIFF WILLIS

RAVEN RECEIVES HENRY SHAW MEDAL — *Dr. Peter H. Raven received the Henry Shaw Medal at the annual Henry Shaw Dinner on November 19, 1996. Dr. Raven was honored for his outstanding achievements during his 25 years of service as director of the Garden. Dr. Raven (right) is shown here with William H. T. Bush, president of the Board of Trustees, who presented the medal.*

PARTNERSHIP PROGRAM TEACHES BOTANICAL ILLUSTRATION— *Each year, students from St. Louis city and county come together through the School Partnership Program, a collaboration between the Garden and St. Louis public schools. One popular class for grades 7 to 12 is Botanical Illustration, in which students study plants by drawing them and using the Garden's herbarium. Teachers this year were Tom Meister, MBG instructor, Yevonn Wilson-Ramsey, MBG illustrator, and Gina Wischmeyer, assistant director of The College School of Webster Groves. Ms. Wischmeyer is shown here working with students.*

Worldwide Research

continued from page 7

checklist is already available online.

Congo: In 1996 the Garden and the Center for the Study of Plant Resources of Congo (CERVE) began a project to improve the Center's herbarium and conduct botanical field work in key protected areas. The World Bank Global Environmental Facility is funding the work.

Uganda: During the past few years, the Garden has been developing collaboration with Makerere University. Garden botanists have already visited the country and plan to conduct plant inventories, establish a one-hectare permanent plot, and train Ugandan field botanists.

Tanzania: In collaboration with the National Herbarium of Tanzania, the Garden has begun an integrated training program involving all of the major botanical institutions in the country. Funding for this initiative is provided by the John D. and Catherine T. MacArthur Foundation and the Liz Claiborne and Art Ortenberg Foundation. Adapting the model of the Garden's highly successful training program in Madagascar, this program will focus on developing a network of local plant collectors and providing in-service training for Tanzanian botanists. Botanists from the Garden and the University of Dar es Salaam have recently conducted a vegetation survey in the Gombe National Park as part of a long-term study directed by the University of Minnesota of habitat utilization by chimpanzees and baboons.

Zambia: For several years the Garden has been working with Zambian scientists to collect information on plant diversity and indigenously used plants. With funding from USAID, the National Geographic Society, and most recently the Dana Brown Charitable Trust, the Garden and its collaborators collect information from botanical inventories, interviews with local people regarding uses for plants, and satellite-based information systems. An important goal of the project is to provide educational opportunities in herbarium curation and taxonomy to prospective Zambian botanists. In addition, the project has supported physical improvements to two herbaria.

Southern Africa: The mosses and irises of temperate and subtropical southern Africa are the subjects of ongoing investigations.

Madagascar: The Garden's activities in Madagascar are designed to increase collections from the country's many under-explored areas and to assist and train Malagasy scientists and students. Garden researchers are working with the Natural History Museum of Paris, the Botanical and Zoological Park of Tsimbazaza, and the National Center for Applied Research in Rural Development of Madagascar on a computerized checklist of the approximately 10,000 species of Malagasy plants. The Garden's training program for Malagasy botanists and students provides intensive instruction in field and herbarium techniques, and two Malagasy scientists are currently enrolled in the Garden's joint graduate studies program with the University of Missouri-St. Louis. Collection of plant samples for the National Cancer Institute continues in Madagascar, a priority area under the new contract with NCI.

Asia

China: The Garden is the coordination center for the Flora of China, a Sino-American project to publish for the first time in English a revised Flora based on *Flora Reipublicae Popularis Sinicae*. A total of 25 volumes of text and 25 of illustrations is planned. Two volumes have already been published and two more are nearly finished. The whole project is expected to be completed in about 15 years. A checklist, or computerized synopsis, of the almost 30,000 species of Chinese plants is also being prepared, with completion scheduled in 1997.

Taiwan: The Garden continues to collaborate with scientists from the Republic of China on the Botanical Inventory of Taiwan project. The Academia Sinica, Taipei, and the Garden are studying the possibility of co-developing a data management system with a Chinese-language graphic user interface similar to Windows.

Southeast Asia: Garden staff members serve on the boards of the Flora of Thailand and Flora Malesiana projects. The latter includes Indonesia, the Philippines, Malaysia, and Papua-New Guinea. Garden researchers have done field work in Vietnam and continue to seek funding for future research activities there. ■

— Kathryn Hurlbert,
MBG research division

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MISSOURI BOTANICAL
FEB 25 1997
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Orchid
Show

"Legends of the Orchid People"
February 1 — March 30, 1997
9 a.m. to 5 p.m. daily
Orthwein Floral Display Hall

Visit a tropical rain forest populated with life-size topiary figures representing forest dwellers who live in harmony with their environment and seek to preserve it.

This popular annual show features colorful blooming plants from the Garden's vast collection of more than 10,000 orchids.

Flower Show Admission: $2 adults, $1 seniors age 65 and older, free to children age 12 and under, free to Garden members.

NOW TWO MONTHS LONG!

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MARCH/
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1997

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GRAND OPENING MAY 3
New Demonstration Gardens
William T. Kemper Center
for Home Gardening

VOLUME LXXXV
NUMBER TWO

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

AS THIS ISSUE of the *Bulletin* goes to press, I am delighted to announce that Jonathan Kleinbard, vice president for university news and community affairs at the University of Chicago, will join the Garden as deputy director early in April. Mr. Kleinbard has been a member of the administration of the University of Chicago almost continuously since 1965, and since 1971 he has been in charge of community affairs at the University. His wealth of experience ensures that he will be an extremely valuable addition to the Garden's staff as we look forward to the challenges and opportunities of the years to come. Watch for more on Mr. Kleinbard in the May/June *Bulletin*.

This spring we celebrate the grand opening of the Kemper Center demonstration gardens with "Garden Expo," a home gardening gala on six wonderful weekends. Each weekend will feature new and exciting festivities, so plan to come often! Tear out and save the special calendar of events for all six weekends of Garden Expo, which appears on pages 12 and 13.

We are very proud to host the exhibit "Witness: Endangered Species of North America" in Monsanto Hall from March 14 through June 10. We have planned a complete calendar of special activities in conjunction with the exhibit, which appears on pages 11 and 12. We are very grateful to Monsanto Fund and the Missouri Department of Conservation for their generosity in co-sponsoring this exhibit at the Garden.

In addition to all the special events we have in store for you, I hope you will visit the Garden often just to enjoy the serenity and beauty of the grounds in springtime. — *Peter H. Raven, Director*

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400
24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522
You will need a touch-tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401
Information on jobs and volunteer opportunities at the Garden is available with a touch-tone phone. Listings are updated bi-weekly. Horticultural Answer Service: (314) 577-5143 Monday through Friday, 9:00 a.m. to noon.

Horticultural Answer Service: 577-5143
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Master Composter Hotline: (314) 577-9555
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Visit the Garden on the World Wide Web:
http://www.mobot.org/

Mailing Address:
Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours
9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Kemper Center for Home Gardening:
9 a.m. to 5 p.m. daily; Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop:
9 a.m. to 5 p.m. daily; 9 a.m. to 6:30 p.m. daily, Memorial Day through labor Day. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant:
Buffet service during hours the grounds are open.

Tower Grove House:
9:45 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January. Admission is free for Garden members.

Shaw Arboretum
Shaw Arboretum is located in Gray Summit, Missouri, just 30 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. Admission is free for Garden members. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House open 10 a.m. to 4 p.m. daily, closed on Mondays. For information call (314) 451-3512.

Moving?
Please remember to send us your new address.
To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this Bulletin and mail to:

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On the Cover
The Garden is looking its best for Garden Expo '97!
Photos by Jack Jennings, William Davit, Tim Parker, King Schoenfeld

Editor
Susan Wooleyhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership For a contribution of as little as $50 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House, invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel domestic and abroad, with other members For information, please call (314) 577-5118.

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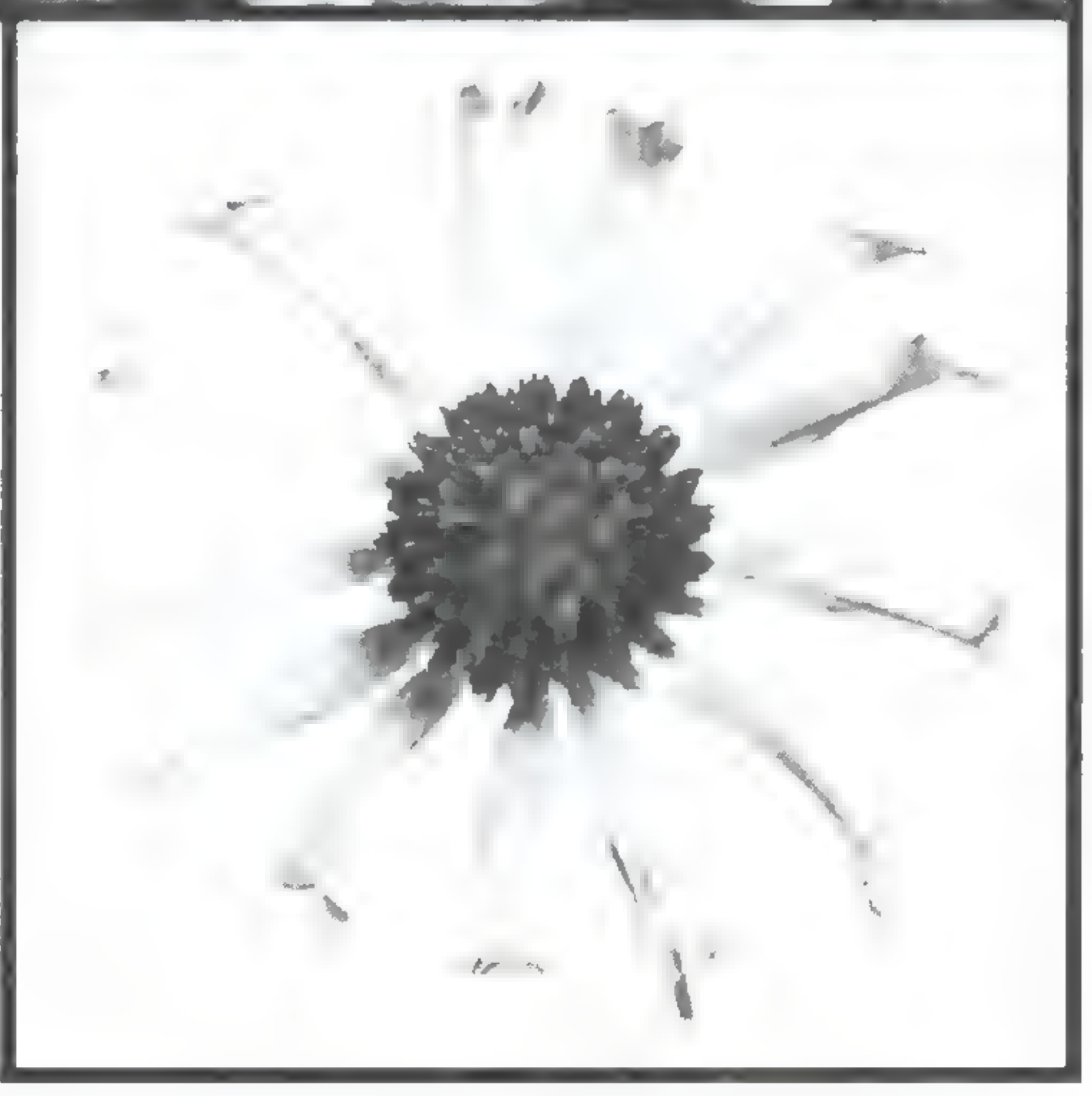
> *"The remarkable portraits presented herein...speak to the heart. In the end their kind of testimony may count as much toward conserving life as all the data and generalizations of science."*
> *— Edward O. Wilson*



March 14 to June 10, 1997

Witness:

Endangered Species of North America

Photographs by Susan Middleton and David Liittschwager

Susan Middleton and David Liittschwager have spent the past ten years photographing endangered species. Their work bridges art and science to create electrifying images of plants and animals poised on the brink of extinction. These remarkable photographs have the power to inspire a lasting appreciation for these beings, and for the necessity of preserving their threatened habitats.

Middleton and Liittschwager's work has been published in *Here Today: Portraits of Our Vanishing Species*, and *Witness: Endangered Species of North America*, both from Chronicle Books, San Francisco.

"Witness" was developed in association with the California Academy of Sciences, San Francisco, where it made its debut in 1994. The exhibit is co-sponsored at the Missouri Botanical Garden by Monsanto Fund and Missouri Department of Conservation.

> *"Each species is a masterpiece. It deserves that rank in the fullest sense: a creation assembled with extreme care and genius."*
> *— Edward O. Wilson*

> *"We want there to be life in these pictures. We want the creatures to evoke a response in those who see them. We are concerned with the interconnectedness of all life. The complexity of relationships between species cannot be shown in a photograph. What we attempt to reveal is the beauty and elegance of an individual life. We offer this grouping of...lives as evidence of the rich diversity of life in North America." — Susan Middleton and David Liittschwager* (pictured at right)

Right: Fifth grade students from Mullanphy-Botanical Garden Investigative Learning Center study "Winter Ecology" at the Litzsinger Road Ecology Center.

PHOTOS BY CLIFF WILLIS

Garden educators are enriching the science programs at four St. Louis magnet schools.

Bringing **Science** to Life

IMAGINE growing beans for your science project in a greenhouse right beside your classroom... or visiting a prairie to see a living ecosystem... or observing the lifecycles of aquatic plants in a pond at your school. Children at St. Louis magnet schools do all of these things and more as they learn by studying science.

Instructors from the Garden's Education Division work under contract with St. Louis Public Schools to provide supplementary science programs at two elementary and two middle magnet schools in the city. A teacher from the Garden has been at Mullanphy-Botanical Garden Investigative Learning Center (ILC) full time ever since the school opened in the fall of 1993. Garden instructors began working with the new Gateway magnet schools when they opened in the fall of 1995, and at Compton-Drew ILC when it opened in fall 1996.

Below: Garden instructor Tom Meister and students at Compton-Drew investigate global warming.

Each of these magnet schools emphasizes science and math while teaching a full curriculum. As the students study science concepts, they learn to use analytical thinking, writing, speaking, and teamwork to solve problems. Studying environmental issues such as global warming teaches decision-making skills and social responsibility.

"We offer hands-on programs that really help students get excited about science," said Maried Swapp, who coordinates the Garden's magnet programs at Gateway Elementary and Compton-Drew. "As we work with students throughout the school year, we build on what they have learned earlier. We also cooperate closely with their teachers, to help them incorporate our programs into their curriculum."

Mullanphy Botanical Garden ILC

In the three years since the Mullanphy ILC opened near the Garden in fall 1993, its enrollment has grown from 390 to 540 children in pre-school through grade 5. Alicia Ivory House, the Garden instructor who is assigned to the school full time, works with every student, presenting science topics that develop sequentially through the school year and from grade to grade. In 1996, Mullanphy students were the only elementary students named as division medalists in the Greater St. Louis Science Fair, winning seven blue, ten red, and six green ribbons.

"We work to incorporate science activities into everything we do at Mullanphy," said Mrs. House. "This year the children organized an Energy Patrol to monitor our energy use and conservation efforts. We also cooperate with local environmental organizations, such as Missouri Energy Resources Project and the EarthWays House, to utilize their expertise and facilities."

Gateway Elementary Math Science and Technology Magnet School

David Bruns, the Garden's instructor at Gateway Elementary, uses the GEMS program, "Great Explorations in Math and Science," to teach children in pre-school through grade 5 at Gateway Elementary. It seems especially appropriate, as the name of the school also spells out "GEMS."

David specializes in teaching natural science outdoors and received special training at the University of California at Berkeley's Lawrence Hall of Science, where GEMS was developed. David works with all 550 students at the school at least twice a month, meeting with classes of 25 for each session. The 12 GEMS units he teaches include activity-based topics such as "Frog Math" "Buzzing a Hive," and "Moons of Jupiter." Each age group also takes related field trips to the Garden or the Litzsinger Road Ecology Center.

Gateway Middle School

Education staff from Shaw Arboretum offer science enrichment programs developed at the Arboretum for students in grades 6 through 8 at Gateway Middle School. Gateway has its own outdoor nature study facility complete with a small prairie area, a pond, and a stream. The sixth graders spend two semesters studying aquatic ecology. As seventh graders, they build on that experience with river ecology, and in eighth grade they discover prairie ecology. The Arboretum education staff, Lydia Toth, Jan Oberkramer, and Miriam Krone, teach as a team. All 600 students meet with them three times each semester.

"Each class visits the Arboretum twice a year to see the prairie, wetlands, or river habitats," Toth said. "We study the ecology of these areas in class before and after their field trip to the Arboretum. Hands-on activities at the Arboretum really make the science concepts come alive for the students."

Compton-Drew ILC

Compton-Drew serves students in grades 6 through 8 in collaboration with the St. Louis Science Center. Tom Meister, a Garden instructor, provides supplementary programs in natural science and related topics at the school. Tom, who used to lead outdoor education programs for the Missouri Department of Conservation at Rockwoods Reservation, teaches a combination of GEMS units and other Garden programs in conjunction with field trips to the Garden, the Arboretum, and Litzsinger Road Ecology Center. He works with 600 students in groups of about 50 in each 90-minute session.

"I like to help students make a connection between what they learn in the classroom and what they see in the world," Tom said. "Before each field trip we study related concepts in the classroom. We also study the social issues involved in such topics as urban ecology, for example."

Dr. Larry DeBuhr, the Garden's director of education, said, "We have worked with the St. Louis Public Schools Magnet Program since the mid-1970s, and we are very pleased to be involved at the new facilities. Scientific training at an early age can instill lifelong interest and enthusiasm that will benefit our society far into the future." ■

***Left:* Students at Gateway Elementary work with GEMS, Great Explorations in Math and Science, led by Garden instructor David Bruns (center).**

***Below:* Gateway Middle School has its own outdoor classroom. Here, Jan Oberkramer of the Shaw Arboretum education staff (kneeling, second from right) helps students use the pond habitat to learn about aquatic ecology.**

Home Gardening

GARDENING IN SMALL SPACES

IN today's hectic society, a city garden provides an intimate setting for resting the mind and body and refurbishing the soul. From a third story apartment patio to a townhouse courtyard, every urban dweller can create an oasis of greenery.

Design

No matter how tiny your space, you can design a garden to fit your own personal needs and tastes. Begin by sketching out your ideas on paper. Suit your design to the character of your home and its site. Strive for harmony in your garden, and keep all elements to scale. One of the most common mistakes urban gardeners make is choosing specimens that are too large for the landscape.

Be sure to create one or two interesting focal points. These can be a part of the hardscape, such as a small fountain, patio, or terrace, or they can be created from living materials such as an espalier, a vine-covered arbor, or boldly colored accent plantings.

Enclosing the Space

Many small gardens are at least partially enclosed by larger buildings or neighboring homes. To enhance privacy, urban gardeners often choose to enclose their small spaces, giving the garden the look and feel of an outdoor room. An enclosed garden also lends an increased feeling of intimacy, screens unsightly views, and forms a windblock, allowing you to experiment with plants that otherwise might not be hardy in your climate.

You can choose to enclose your garden with plants or with hardscape. Plants provide the beauty of a living screen but generally require more maintenance and take up more space than a fence or a wall. Walls and fences are more expensive than plants but offer immediate privacy and lower maintenance.

The types of materials you choose for walls or fences will also affect the atmosphere of your garden. Masonry walls, such as brick, add their own unique color and texture, while stone walls lend a feeling of age and permanence. The style of fence you construct will also have its own distinctive feel and rhythm.

If you are so fortunate as to have a neighbor with a well-landscaped yard, or a park within sight, you may not want to close off the view. The use of "borrowed landscape" can make your property feel much larger.

Vertical Elements

Trellising and vertical gardening will help to soften hardscapes and add more growing space to small gardens. Vines are a classic choice for the vertical garden, but many vegetables such as peas, beans, and tomatoes may be grown this way as well. In addition, vertical gardening eliminates much stooping and bending, allowing you to tend to your plants at eye level. When planting your vertical garden, don't overdo it. Strive for a light, airy look, and avoid growing too many plants on one trellis.

Espalier is another option for covering hardscape. Espalier is the technique of training your plants to grow against a wall, allowing four to six inches of air space behind the plants. The plants are then pruned and trained to a desired shape. If you think you would like to tackle an espalier, consider purchasing one that has already been started for you.

Containers

Planters and window boxes are a real boon in the small garden. When planting in containers, I recommend plastic pots rather than clay or ceramic. In general, plastic is much easier to move about the garden and will retain water much longer than other materials. Most plants make suitable candidates for container growing, including many trees and shrubs. You may plant a single specimen or you may choose to "mix and match." Any combination of plants is acceptable in one container as long as all of the plants have similar cultural requirements.

Selecting Plants

In small gardens, every plant must prove its worth for as long as possible, so choose selections that will provide interest throughout the year. Microclimate is an important consideration, too. Microclimates are the local environmental factors that are unique to your site, including temperature, wind duration and velocity, and sunlight.

Trees and shrubs are the permanent framework of your garden, so choose them carefully. They are divided into two groups: evergreens, which retain their foliage throughout the year, and deciduous trees, which lose their leaves annually.

There are two different types of evergreens: the needle-leaved trees and shrubs, and the broad-leaved evergreens, such as hollies and rhododendrons. Evergreens are extremely popular for small gardens and make good specimen plants in the winter landscape. Because they retain their foliage, evergreens are also excellent choices for screens and hedges.

There are several deciduous ornamental trees in the 15- to 30-foot range that are suitable for smaller gardens. The most important considerations in placing a deciduous tree in the landscape are its shape and architectural qualities. Does the tree have a rounded or columnar canopy? Is it fan-shaped or weeping? Use the shape and structure of the tree as a main element in creating balance in your landscape design. And before making your final decision, don't forget to consider what the tree will look like in winter without its leaves!

Deciduous shrubs can add color, fragrance, flowers, and fruits to your landscape. In addition, deciduous shrubs tend to have a light and airy feeling about them that makes them the perfect backdrop for annuals and perennials. While deciduous shrubs lose their leaves in the winter, many justify their existence in the winter garden with colorful bark or interesting shapes.

Annuals, perennials, and bulbs add seasonal color. While that is desirable, it is important to remember that these plants do not make a year-round landscape. Urban gardeners are wise to be selective and to limit their use of these plants. Begin by choosing a color scheme and a few favorite annuals and perennials. Plant the perennials in masses to create a bold visual statement and a resting spot for the eye. Finish by adding annuals to the bed to enhance the color and extend the season of bloom.

Few things offer gardeners the same satisfaction as growing their own herbs and vegetables. There are many new vegetable varieties available that have been developed specifically for containers and small gardens. In addition, space-saving horticultural techniques such as vertical growing, interplanting, wide-row planting, square-foot gardening, and succession planting can greatly increase yields in the vegetable garden.

For more ideas on gardening in small spaces, visit the Mercantile City Garden, described below. It is one of 23 new demonstration gardens open this spring at the Kemper Center for Home Gardening.

– Katie M. Belisle, Re.D., MBG horticultural coordinator

MERCANTILE BANK CITY GARDEN

AS A SMALL SPACE enclosed on all sides by walls or fences, the Mercantile Bank City Garden has the intimate look and feel of a peaceful green oasis. The City Garden is thoughtfully designed to address many of the challenges faced by urban gardeners.

A peek-through opening in the fence unites the interior with the landscape outside, making the garden appear larger. Vertical trellises and plants growing on the walls make the most of the space. Containers of annuals add color and warmth, while water splashing in the fountain around a whimsical blue fish bestows an air of playful tranquility.

The plants in the City Garden were carefully chosen for the unique microclimates that are a common feature of small enclosed gardens, ranging from full sun to dense shade. Hardy vines help soften the hardscape and create a cooling effect. The pink and white-tipped heart-shaped leaves of the kiwi vine, *Actinidia kolomitka*, provide shade and brighten the southeast corner. Boston ivy, *Parthenocissus tricuspidata* 'Lowii', with its glorious scarlet fall color, presents an attractive foil to the dark brick on the northwest walls of the garden. Gracing the south wall, shade-tolerant climbing hydrangea, *Hydrangea petiolare*, is a true aristocrat, taking approximately five years to achieve vigorous bloom. The sheer drama and beauty of its delicately fragrant white flowers, which bloom in

continued on page 8

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9190
American Orchid Society (Mid-America Regional Judging Committee)	David Brown	727-2385
Belleville Area Rose Society	Dennis Nelson	(618) 233-4609
Bonsai Society of Greater St. Louis	*Bob Harris*	352-0817
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
Federated Garden Clubs of Missouri, Inc.	*June M. Kummer*	821-5075
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Ron Bilchik*	991-5008
Greater St. Louis Iris Society	*Jim Loveland*	349-4977
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*Bob Preis*	677-8805
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Walter Clark*	230-0726
Rose Society of Greater St. Louis	*Robert W. Schneider*	524-3167
St. Louis Evening Herbalists	*Beth Holbrooke*	434-6152
St. Louis Herb Society	*Barb Ottolini*	532-4644
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
St. Louis Hosta Society	*Mirko Bolanovich*	965-7471
St. Louis Water Garden Society	*Bonnie Alford*	962-2663
West County Daylily Club	*Roy Bohrer*	240-8780

Beginning with the July, 1997 issue, this directory will be published twice a year, in the January and July issues of the *Bulletin*. To change your listing, please send a written notice by December 1 or June 1 to: Bulletin Editor, Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, or call (314) 577-5123.

MERCANTILE BANK CITY GARDEN

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June, will prove to be well worth the wait.

Ornamental trees and shrubs add depth and dimension to the garden. The compact size and deeply lobed red-purple leaves of the Japanese maple, *Acer palmatum* 'Bloodgood', make it an excellent choice as a specimen tree in the City Garden. The oakleaf hydrangea, *Hydrangea quercifolia*, provides year-round interest with attractive exfoliating bark and impressive flower heads which remain consistently showy. Valued for their fragrance, the delicate blooms of the deciduous shrub sweet pepperbush, *Clethra alniflora*, will fill the garden with sweet spicy scent in midsummer. *Fothergilla gardenii* 'Blue Mist' has honey-scented blooms in spring and blue-green foliage that turns into arresting shades of yellow, orange and red in the fall.

Evergreens and dwarf conifers such as *Chamaecyparis pisifera* 'Filifera Nana' supply permanent interest and add an element of scale and variety to the City Garden. Attaining a maximum width of just three feet, the evergreen *Thuja occidentalis* 'DeGroot's Spire' is an excellent choice for tight spaces.

The City Garden is underplanted with shade-tolerant ground covers such as sweet woodruff, *Galium odoratum*, and Bishop's hat, *Epimedium* × *rubrum*, in areas where shade prevails, as it so often does in a small garden. The green-edged silver leaves of the ground cover *Lamium maculatum* 'White Nancy' can tolerate full sun to partial shade.

The majority of perennials in the garden exhibit strong upright forms and are tolerant of both full sun to partial shade. They were chosen to provide a continuous parade of bloom. *Astilbe* × *arendsii* 'Rheinland' provides color in areas of dense shade.

Small spaces can be quite efficient for producing vegetables. Lined with a petite hedge of germander, *Teucrium chamaedrys*, the west planting bed receives the greatest amount of sunlight and is home to an array of vegetables, herbs, and colorful annuals. 'Oregon Giant' peas scramble up a trellis, while space-saving lettuce 'Tom Thumb' takes little room in the planting bed. Other cool season herbs and vegetables were chosen with short dates-to-maturity in order to maximize yields. Some space-saving vegetable varieties in the garden this summer will include a bush-type zucchini, *Cucurbita pepo* 'Raven', 'Patio' tomatoes, and 'Bambino' eggplants.

The soft colors of *Linaria* 'Fairy Lights' and the old-fashioned fragrance of stock 'Midget Mix' will give the City Garden the look and feel of a cottage garden. Annual flowers chosen for their usefulness in fresh or dried arrangements include *Cosmos* 'Sonata Mix', *Zinnia pumila* 'Mix', *Salvia* 'Victoria', *Gomphrena* 'Strawberry Fields', and an annual baby's breath, *Gypsophila muralis* 'Garden Bride'.

To see just how delightful a small garden can be in any season, don't forget to visit the City Garden this summer and throughout the year.

– Katie M. Belisle, Re.D.,
MBG horticultural coordinator

LOIS WHITESIDE FRANKLIN FLOWER TRIAL GARDEN

VISIT the Flower Trial Garden this spring to see the many colorful selections of pansies and violets that were planted last fall. These plants are being evaluated for their cold tolerance and adaptability to our climate. This summer, visitors to the Flower Trial Garden will be able to judge for themselves the durability, aesthetic appeal, and suitability of many plants chosen for evaluation in our hardiness zone.

Summer Trials

This year the Flower Trial Garden will include two different award-winning categories of annuals: the All American Selections Award and Proven Winners. New cultivars of the familiar annual vinca, *Catharanthus roseus*, created as a result of flower breeding, will be judged for weather tolerance. The perennials *Coreopsis* and *Achillea* will be showcased, giving visitors an opportunity to marvel at the diversity among the wide array of cultivars available to home gardeners.

AAS Annuals

Annuals chosen as winners of the All American Selections Award have been tested at independent test sites across North America. AAS winners are proven to have superior home garden qualities when grown in side-by-side comparison tests with similar varieties.

The three 1997 AAS Flower Award Winners to be unveiled in the Trial Garden this summer are a cockscomb celosia, *Celosia cristata* 'Prestige Scarlet', an annual baby's breath, *Gypsophila muralis*, and the small-flowered zinnia, *Zinnia angustifolia* 'Crystal White'. AAS winners in the vegetable category for 1997 include Thai basil 'Siam Queen' and cabbage F_1 Hybrid 'Dynamo'.

Proven Winners

Proven Winners are ornamental plant varieties that have been selected for their vigor and performance. They are developed to out-perform, out-bloom, and out-last other flowering ornamentals. Because they are produced from cuttings, these varieties are not available from seed. Cuttings are made from virus-indexed plant stock to ensure that gardeners will receive clean, healthy, virus-free plant material that will last the entire growing season. Some highlights to look for among the Proven Winners this summer include two new varieties of full-sun begonias, uncommon varieties of basket and bedding plants, and "Supertunias," a heat-resistant, trailing, ever-blooming petunia.

Perennials

Commonly known as yarrow, members of the genus *Achillea* are extremely versatile and generally have low maintenance requirements. *Achillea* is attractive to both bees and butterflies and is often grown for its value as an everlasting. *Achillea* selections that will be evaluated in the Trial Garden this summer include *Achillea filipendulina* 'Coronation Gold', a popular low maintenance variety for the back of a mixed border. For the mid-border, consider *A. taygetea* cultivars such 'Anthea' or 'Moonshine', which grow to a height of 18 inches.

A plant with many good cultivars, *Achillea millefolium* comes in a variety of colors, from the vibrant brick red of 'Paprika' to the soft pastel shades of 'Debutante'. Low-

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Flower Trial Garden
continued from page 8

growing species *A. tomentosa* and *A. ageratum* are best suited to the well-drained soil of a rock garden setting. And the buttonlike white double flowers of *A. ptarmica* 'The Pearl' provide some compensation for its untidy appearance and invasive nature.

Coreopsis is a heat-loving and drought-tolerant genus with many representatives in home gardens. Perhaps the most popular cultivar for the perennial border is the threadleaf coreopsis, *C. verticillata* 'Moonbeam', which bears its sulphur yellow daisy-like flowers well into the fall. For the front of sunny borders, the compact cultivars of *C. lanceolata* are hard to beat. *Coreopsis rosea,* with its delicate pink blooms, is also at its best in the front of the border.

A rock garden jewel, *Coreopsis auriculata* 'Nana' has butterscotch yellow flowers that will flower from spring to late summer if deadheads are removed. The larger blooms of *C. grandiflora* 'Early Sunrise' and 'Sunray' make fine cut flowers. *Coreopsis tripteris* and *C. palmata* are two native prairie wildflowers that are well adapted to the ornamental garden. And be sure to notice the only annual member of the genus, *C. tinctoria*, or calliopsis, which blooms all summer long and is often found in wildflower seed mixes.

But don't wait for the summer trials! Visit the Flower Trial Garden this spring, and be sure to look for the results of the spring and summer tests in a future issue of the *Bulletin*.

– Katie M. Belisle, Re.D., MBG horticultural coordinator

Join With Gateway Greening! April 20–26, 1997

The Great Perennial Divide

THE EXTRA PLANTS FROM YOUR GARDEN can help transform inner city vacant lots into beautiful neighborhood gardens.

The week of April 20, 1997, all gardeners are invited to bring divisions and seedlings from their gardens to one of ten collection sites located throughout St. Louis. Volunteers will be on hand to greet you and care for the plants you donate. All plants will be distributed to community gardens on April 26.

The Great Perennial Divide is sponsored by Gateway Greening, Inc., and volunteers from the St.Louis Master Gardeners, plant societies, and horticulturists from the Missouri Botanical Garden. Awards will be presented to individuals and groups participating in the Great Perennial Divide.

What Are Community Gardens?

Community groups plant and tend trees, shrubs, mini-parks, vegetable gardens, and flower borders on vacant lots or abandoned land. With assistance from Gateway Greening Inc., a non-profit organization based at the Missouri Botanical Garden, over 80 community gardens and 70 school gardens in St. Louis are helping to build pride in inner city neighborhoods.

Community garden leaders (from left): Joe Frye, Mae Hughes, and Mattie Adolph

Share the Bounty of Your Garden!

The following donations are welcome:

Bulbs
Herbs
Ground covers
Shrubs
Small trees
Rock garden plants
Perennials for sun or shade
Seedlings of annual vegetables and flowers
Tools and hoses in good condition

How to Donate to the Great Perennial Divide:

- Please pot smaller divisions.
- Large clumps must be wrapped in waterable containers.
- Labelling is recommended.
- Please, no clay pots, invasive plants, untrimmed piles of ground covers, diseased plants, or plants in poor condition.
- Drop off plants at a collection site near you.

Great Perennial Divide Hotline: (314) 577-5100 ext. 765
Call for additional information and directions to the collection site nearest you.

Gateway to Gardening Has Changed Its Name

Gateway Greening, Inc., formerly known as Gateway to Gardening, is a non-profit organization based at the Missouri Botanical Garden. Gateway supports community development by providing assistance to neighborhood groups to establish and maintain community gardens, mini-parks, or street plantings.

Calendar

March 1 – 30

Orchid Show

9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. Flower show admission: $2 adults, $1 seniors age 65 and over. Free to children age 12 and under and free to Garden members.

March 4 Tuesday

Trip Preview: "Kenya: A Grand Safari"

7:30 p.m., Ridgway Center. Get a preview of the Garden's natural history adventure to Kenya, coming up next October. Call (314) 577-9506 for more information.

March 16 Sunday

"Illusions of Space in Japanese and Chinese Gardens"

2 p.m., Beaumont Room. Enjoy a slide lecture by Elizabeth McIntire, professor emerita at Principia College, followed by a tour of the Japanese and Chinese gardens. Co-sponsored by the Asian Art Society. Free with regular Garden admission. Call 935-5156 for reservations.

March 16 Sunday

Child's Global Village

1 to 4 p.m., Monsanto Hall. The Greater St. Louis Returned Peace Corps volunteers will be on hand with colorful displays and information about life in other countries. Free with regular Garden admission.

March 19 Wednesday

"Biological Diversity and the Extinction Debt: The Ecological and Economic Costs of Habitat Destruction"

7:30 p.m., Shoenberg Auditorium. Dr. David Tilman, Distinguished McKnight University Professor at the University of Minnesota, will present the 1997 Jane and Whitney Harris Lecture, co-sponsored by the Garden, the International Center for Tropical Ecology at UM-St. Louis, and the Saint Louis Zoo. Dr. Tilman is internationally recognized for his landmark studies; his work has established some ecological principles fundamental to the conservation of global biodiversity. Refreshments will be served. Admission: $5 per person.

March 19 Wednesday

Trip Preview: "The Nature Place"

7:30 p.m., Ridgway Center. Get a preview of the Garden's natural history adventure to the Nature Place in the Colorado Rockies, coming up next July. Call (314) 577-9506 for more information.

April 3 Thursday

"Down to Earth and High in the Sky"

10:30 a.m., Shoenberg Auditorium. Maureen Alonso, superintendent of horticulture and grounds, and Joe Alonso, mason foreman at the Washington National Cathedral, present an illustrated lecture on the horticulture and landscaping programs, construction history, and preservation programs of our nation's sixth largest cathedral. Co-sponsored with the National Cathedral Association. Free with regular Garden admission.

April 3 Thursday

Trip Preview: "Galapagos: Darwin's Enchanted Isles"

7:30 p.m., Ridgway Center. Get a preview of the Garden's natural history adventure to the Galapagos, coming up next August. Call (314) 577-9506 for more information.

April 17 Thursday

Preview: "Kenya: A Grand Safari"

7:30 p.m., Ridgway Center. See March 4.

April 17 – 20
Thursday – Sunday

Annual Spring Plant & Gift Sale

Daily in the Garden Gate Shop and Orthwein Floral Display Hall, with special promotions and discounts for Garden members. See page 15.

April 19 & 20

Garden Expo Opens

See pages 12 – 13.

Coming Attractions —

May 10 Saturday

Spring Wildflower Sale

10 a.m. to 4 p.m., Shaw Arboretum. Outstanding regional nurseries offer the showiest and hardiest native plants for home landscaping. All plants are propagated, not wild-collected. Proceeds benefit the Whitmire Wildflower Garden at the Arboretum. Watch the May/June Bulletin, or call (314) 451-3512 for information.

Members' Days

March 15 Saturday

"Spring Gardening"

11 a.m., Shoenberg Auditorium. Join Ben Chu, MBG staff horticulture supervisor, for an informative and entertaining look at gardening. Seating is on a first-come, first-served basis. Free, for members only.

April 30 Wednesday

Greenhouse Sale

9 a.m. to 4 p.m., MBG greenhouse complex. Are you looking for lush hanging baskets, potted trees, orchids, out-of-the-ordinary plants, or large scale greenhouse specimens for your patio or deck this summer? The Horticulture Division must clear out its surplus inventory, and this is your opportunity to acquire plants that cannot be found in retail nurseries. Don't miss your chance to own collectible plants from the Garden's living collection. This special sale is available to members only.

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Witness:

Endangered Species of North America

March 14 - June 10, 1997

9 a.m. to 5 p.m. daily, Monsanto Hall.
Co-sponsored by Monsanto Fund and Missouri Department of Conservation. See page 3.

he following events are
resented in conjunction with
ne "Witness" exhibit:

larch 14 Friday

Photographers'
Vorkshop

to 4 p.m., Shoenberg
uditorium."Witness" pho-
ographers Susan Middleton
nd David Liittschwager
emonstrate their techniques
or photographers at all skill
vels. $30 adults, $25 mem-
ers. Registration is limited;
all (314) 577-5141.

Here Today —
Gone Tomorrow?"

p.m., Shoenberg
uditorium. Susan Middleton
nd David Liittschwager pre-
ent an account of their ten-
ear project to photograph
ndangered plants and ani-
als and discuss what moti-
ated their work. They take
ne audience on location,
howing where they went and
ow they photographed their
ubjects, and share stories of
eir encounters with hun-
reds of creatures at risk. Free
dmission.

pril 5 Saturday

arthFriends Day:
Biodiversity
Jniversity"

) a.m. to 5 p.m. Live otters,
vls, insects, carnivorous
ants, and fun for the whole
mily as you learn about the
credible variety of life on
ur planet. Visit the different
ations at the Garden's
odiversity University and
ave your passport stamped
receive a special free gift!
njoy visitors from the World
rd Sanctuary, St. Louis
hildren's Aquarium, Mid-
merica Aquacenter, the Wild
anid Survival and Research
enter/Wolf Sanctuary, and the
int Louis Zoo. Learn about
vironmental issues from the
issouri Prairie Foundation,
The Nature Conservancy, Sierra Club, Missouri Environmental Fund, St. Louis Audubon Society, and the Center for Plant Conservation.

Live otter show at 2 p.m. Pot a carnivorous plant to take home (fee: $2). Have fun creating a habitat and playing the "Best Beak" game. See special short feature nature films in Shoenberg Auditorium. All events are free with regular Garden admission.

April 5 Saturday

"Common Fields: An Environmental History of St. Louis"

11 a.m., Shoenberg Auditorium. Dr. Andrew Hurley will discuss a new collection of essays he edited; see page 15. Booksigning in the Garden Gate Shop following the lecture, 11:30 a.m. to 1 p.m.

April 9 Wednesday

"Missouri's Endangered Species"

7 p.m., Shoenberg Auditorium. Kathleen Hultgren, endangered species coordinator for the Missouri Department of Conservation, speaks on the Department's Endangered Species program. Free admission.

April 15, 22, 29
May 6, 13, & 20

Wildflower Walks

9:30 a.m. to noon on six Tuesdays at Shaw Arboretum. Join Dick and Susan Russell for a tour of the Whitmire Wildflower Garden and other seasonal blooms. Call (314) 451-3512 for more information.

May 2, 9, & 16 Fridays

Arboretum Wanderings

9 a.m. to noon, Shaw Arboretum. Betty Nellums leads tours. Call (314) 451-3512 for more information.

May 3 Saturday

Cookout & Campout at Schwartz Prairie

Join the Missouri Prairie Foundation, a non-profit conservation organization, for a field trip to the Charles W. and Elizabeth R. Schwartz Prairie in St. Clair County, led by prairie custodian Stan Parrish and botanist Tim Smith of the Missouri Department of Conservation. Call (573) 449-4805 for information, registration, and directions.

May 9 Friday

"Rescuing Traditional Food Crops"

7 p.m., Shoenberg Auditorium. Kent Whealy and his wife Diane founded Seed Savers Exchange in 1975 as a non-profit network of gardeners who collect and distribute endangered varieties of fruits and vegetables. At Heritage Farm in Iowa, the Whealys display educational collections of heirloom vegetables, 19th century apples, hardy grapes, and rare livestock. Seed Savers' genetic preservation projects have provided the model for similar projects and organizations in more than 30 countries. Admission: $4 adults, $3 seniors age 65 and over, $2 Garden members.

May 10 Saturday

"Seed Saving Techniques for Vegetable Gardeners"

10 a.m., Shoenberg Auditorium. Lecture class with Kent Whealy, director of Seed Savers Exchange. $13 adults, $10 members.

continued on page 12

"Witness"

continued from page 11

May 14 Wednesday

"Sustaining Endangered Species in Missouri: What Is 'Natural'?"

7 p.m., Shoenberg Auditorium. Doug Ladd of The Nature Conservancy looks at the diverse habitats of Missouri and the role of human society in the "natural" environment. Admission: $1 for adults, free to Garden members.

May 18 Sunday

Center for Plant Conservation Day

A day of events celebrating the Center for Plant Conservation, including tours of endangered species growing at the Garden, a lecture by Dr. Brien Meilleur, president of CPC, and a special concert featuring musicians Eric Tingstad and Nancy Rumbel. Call (314) 577-9456 for more information.

May 28 Wednesday

"Racing for New Medicines: The Urgency of Bioprospecting"

7 p.m., Shoenberg Auditorium. Plants provide about one quarter of the medicines marketed in the U.S., yet only about one percent of the world's flora has been studied for pharmaceutical potential. Dr. James S. Miller, associate curator and head of the Department of Applied Research in the Garden's Research Division, discusses the work of Garden botanists who currently provide thousands of plant samples each year for pharmaceutical research. Admission: $1 adults, free to Garden members.

June 7 Saturday

Field Trip to Victoria Glade

Join Doug Ladd of The Nature Conservancy for a trip to Victoria Glade in Jefferson County. Limited to 50 participants. Call The Nature Conservancy at(314) 968-1105 for information and reservations.

GardenExpo

Six Wonderful Weekends in April & May, 1997

10 a.m. to 5 p.m. daily

Celebrate the grand opening of 23 new demonstration gardens at the William T. Kemper Center for Home Gardening. Each weekend features entertainment, workshops, demonstrations, tours, special gift shop promotions and food service, and lots more! Garden Expo is free with regular Garden admission.

At the Kemper Center for Home Gardening

- Information Booth — experts from the Garden's horticulture staff are on hand to answer your gardening questions
- Cappucino Wagon or Food Cart
- Treasure Hunt for Kids — Follow the treasure map and win a free coloring book

April 19 & 20 Saturday & Sunday

Dig Into Gardening

Hands-on Workshop: "Selection and Care of Bedding Plants," 11 a.m. daily, Summer Plant House
Demonstration: "Growing and Caring for Bulbs," 1 p.m. daily, Kemper Center Gardens
For Kids: "Potting Marigolds to Take Home," 10 a.m. to 2 p.m. daily, Kemper Center
Greenhouse Tours: 10 a.m., noon, 2 and 4 p.m. daily
Bulb Garden Tours: 11 a.m., 2 p.m. daily
Garden Gate Shop: April 17-20, Annual Spring Plant Sale – Garden members receive 20% discount
Special Vendor Promotions: Hu-more, Gro-brick, Schultz Plant Food, Portmeirion Trunk Sale, Jim Chrisco's handmade copper fountains, Green Tree Forge, blacksmith.
Drawing: Register to win a mini-greenhouse, sponsored by the Gardeners of America.

April 26 & 27
Saturday & Sunday

Blossoms, Birds, & Bees

Flamingo Fly-In: Celebrate the 40th Anniversary of the Pink Flamingo! Meet Donald Featherstone, creator of the famous pink flamingo lawn ornament, who will be on hand 10 to 11 a.m. and noon to 2 p.m. to greet visitors and autograph flamingos.

Illustrated Lecture: "The Good, The Bad, and the Unbelievable!" At noon each day in Shoenberg Auditorium. Take a humorous look at the whimsical world of yard art with Felder Rushing, author, columnist, and host of radio and television gardening programs.

Special Demonstration: "How to Make Your Own Yard Art," 2:30 p.m. daily, Kemper Center. Make lawn ornaments with Felder Rushing.

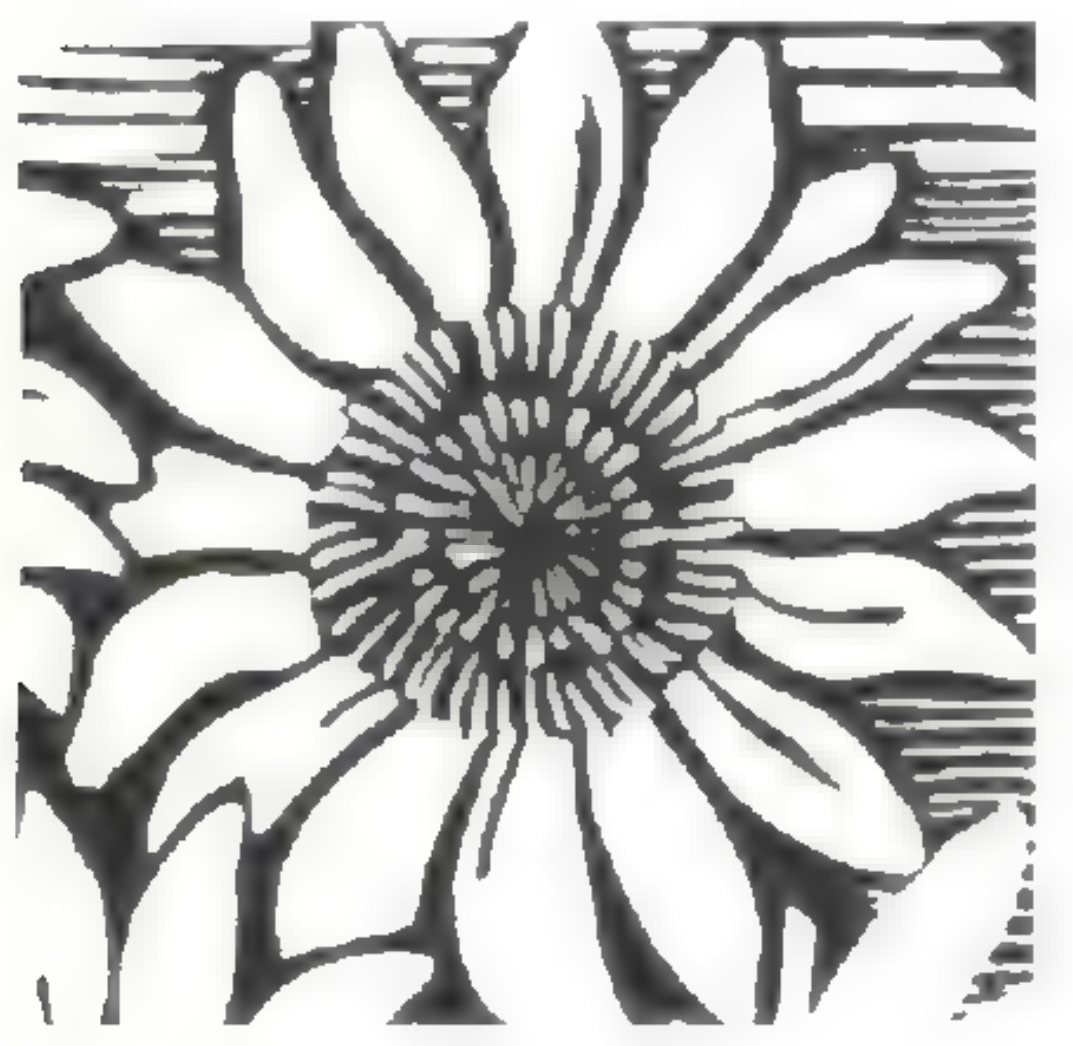
Hands-on Workshops: "Summering Indoor Plants," 11 a.m. daily, Summer Plant House. "How to Photograph Your Garden" with Jack Jennings, 9 to 11 a.m. (limited to 30 participants).

Demonstration: "Soil Preparation," 1 p.m. daily, Kemper Center Gardens.

For Kids: "Make a Bird Hat" and see entries in the "Birdfeeder Building Contest," 10 a.m. to 2 p.m. daily at Kemper Center; see the Bee Hive Exhibit.

English Woodland Garden Tours: 11 a.m. and 2 p.m.

Garden Gate Shop: Meet Matt Miles, photographer of "Wild Missouri" calendars and notecards, and Paul Gosslar, creator of practical birdhouses.



May 3 & 4
Saturday & Sunday

Grand Opening of the Kemper Center Demonstration Gardens

May 3 Saturday — Members' Dedication and Grand Opening Ceremony
10 a.m., Kemper Center.

May 4 Sunday — Public Opening
Featuring costumed characters and music, both days.

Hands-on Workshop: "Edible Flowers," 11 a.m. daily, Summer Plant House

Demonstrations: "Vegetable Gardening," "Lawn Care," "Dividing Perennials," 1 p.m. daily, Kemper Center Gardens. Evening Herbalists, 10 a.m. to 5 p.m. daily.

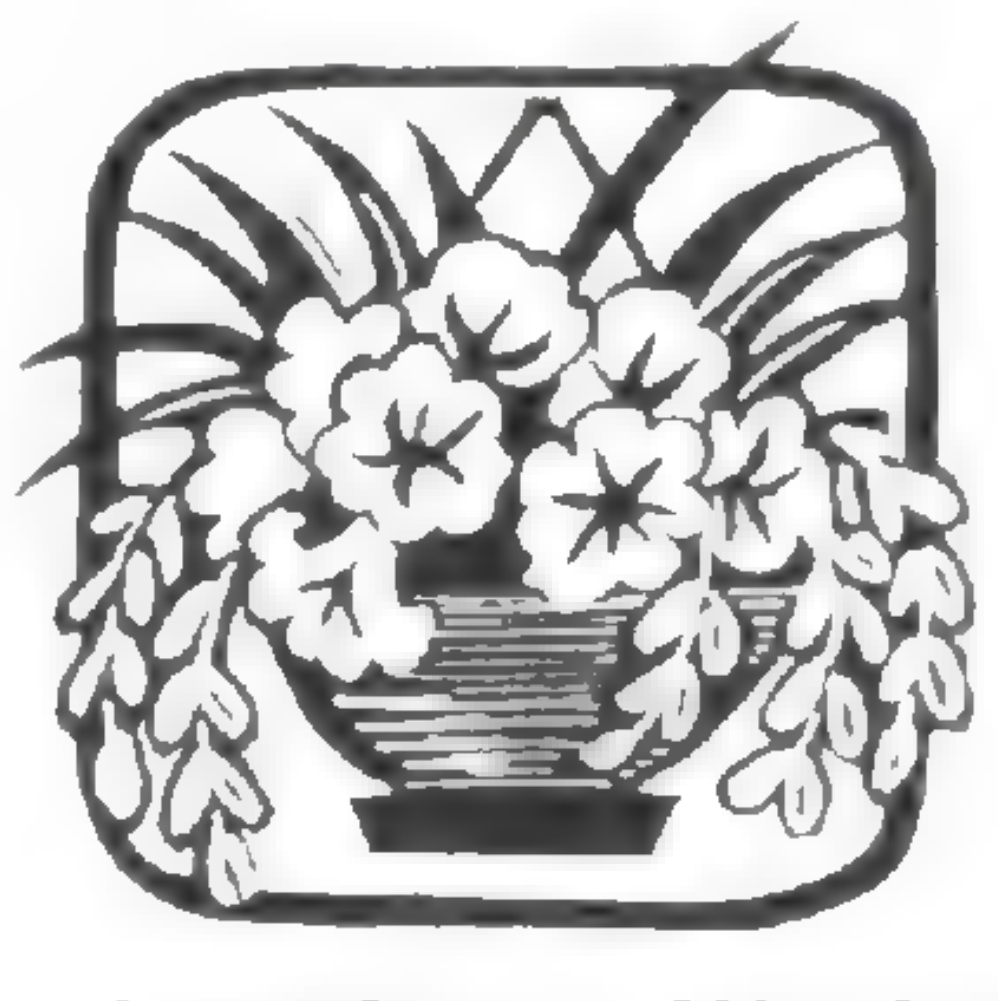
For Kids: "Potting Herbs to Take Home," 10 a.m. to 2 p.m. daily

Kemper Garden Tours: 11 a.m., 1 and 2 p.m. daily.

African Violet Show and Sale: 9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. 42nd annual show and sale by the Metropolitan St. Louis African Violet Council.

Garden Gate Shop: 9 a.m. to 5 p.m. daily, Kevin Garber's tiles, Sandy Alspaugh's watercolor prints, Grette Herrick's *Edible Wildflowers*.

Lecture: "Perennials for the Lower Midwest," by author Ezra Haggard. Saturday, May 3, noon, Shoenberg Auditorium. Booksigning in the Garden Gate Shop follows the lecture.



May 10 Saturday

Container Gardening

Hands-on Workshop: "Tropicals for Containers," 11 a.m. daily, Summer Plant House

Demonstration: "Pruning Flowering Shrubs," 1 p.m. daily, Kemper Center.

For Kids: "Decorate and Plant a Flower Pot for Mom," 10 a.m. to 2 p.m. daily, under the tent at the Ridgway Center. Fee: $3 per potted plant, for children ages 4 to 12. Sponsored by the Garden Members' Board.

Japanese Garden Tours 11 a.m. and 2 p.m. daily.

Plant Societies: Rose Society Mini-Sale, 9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall.
Dahlia Society Sale, May 11 & 12, 9 a.m. to 5 p.m. daily, Beaumont Room

Garden Gate Shop: 9 a.m. to 5 p.m. daily, Raku pottery by Carol Swift and Jozart's hand-painted containers.

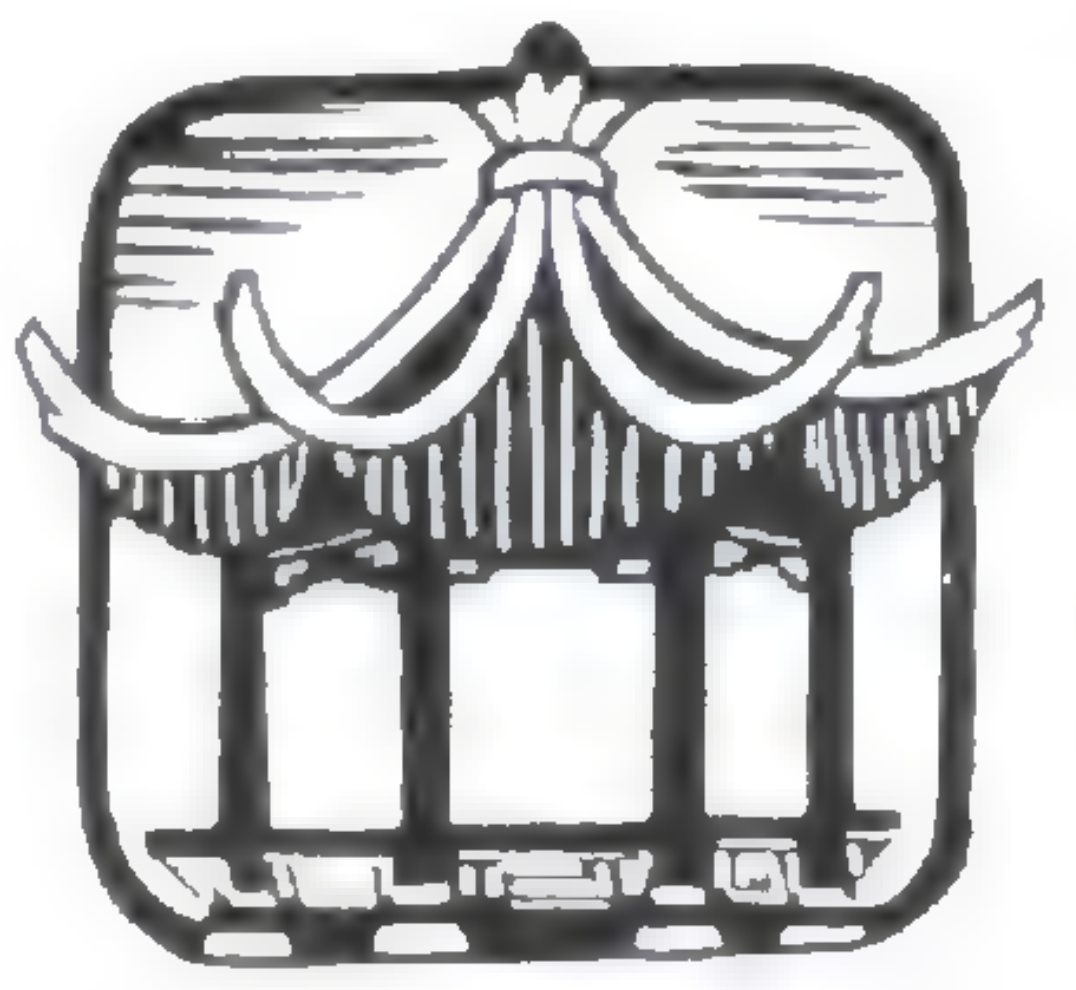
May 17 & 18
Saturday & Sunday

Herb Gardening & Chinese Festival

May 17 Saturday – Chinese Festival

May 18 Sunday – Herb Gardening

May 17 Saturday – Chinese Festival



Performances, stage shows, processions, and family activities

Tours of the Grigg Nanjing Friendship Garden 11 a.m. and 2 p.m.

Hands-on Workshop: "Herbs in Containers," 11 a.m. both days, Summer Plant House

Demonstration: "Water Gardening," 1 p.m. both days, Kemper Center.

St. Louis Horticulture Society Show and Sale Noon to 5 p.m. both days, Orthwein Floral Display Hall

Garden Gate Shop: 9 a.m. to 5 p.m. both days, Crabtree & Evelyn

Sunday, May 18: St. Louis Herb Society Activity for Kids, 10 a.m. to 2 p.m., Kemper Center

Lecture: "Medicinal Herbs of the Midwest," 1:30 p.m., Shoenberg Auditorium, by herbalist Cathy Crandall.

Booksigning: In the Garden Gate Shop, Connie Kaye and Neal Billington, *Medicinal Plants of the Heartland.*

May 24 & 25
Saturday & Sunday

Fragrance Gardening

Hands-on Workshop: "Fragrant Plants," 11 a.m. daily, Summer Plant House

Demonstration: "Butterfly Gardening," 1 p.m. daily, Kemper Center Gardens

For Kids: "What's the Buzz?" pollination game and "Make a Potpourri Sachet," 10 a.m. to 2 p.m. daily, Kemper Center

Tours of Boxwood Garden and the Rose Gardens 11 a.m. and 2 p.m. daily.

Special Program May 24: "Purple Martins" with W. Ashley Gray III, the Garden's honorary curator of purple martins. A program at 3 p.m. in Shoenberg Auditorium will be followed by a visit to the Kemper Center gardens to view the purple martin neighborhood.

Rose Society Show Noon to 5 p.m. Saturday, 9 a.m. to 5 p.m. Sunday, Orthwein Floral Display Hall.

Garden Gate Shop: Cheryl's Herbs – aromatherapy display and puppet show.

Prize Drawing: Register to win a mini-greenhouse, sponsored by the Gardeners of America. Drawing on May 25.

Members

PHOTOS BY CLIFF WILLIS

Members' Board Elects New Officers

At the annual luncheon meeting at Spink Pavilion on January 13, the Garden Members' Board elected new officers and welcomed several new members to the Board. Ann Bowen was reelected as president. The new officers are Liz Teasdale, first vice president; Donna Walker, second vice president; Jean Crowder, recording secretary; Gale Dean, corresponding secretary; and Mary Glaub, treasurer.

Above, top: New officers (from left): Donna Walker, William H. T. Bush, president of the Board of Trustees, Ann Bowen, Liz Teasdale, Jean Crowder. Not shown: Gale Dean, Mary Glaub.

New Board Members (from left): Von Brokow, Marie Schmitz, Gloria Strauss, Laura Hageman, Bette DeBernardi, joined by William Bush, president of the Board of Trustees, and Ann Bowen. Not shown: John Karel, Mary O'Neill, Jackie Tung.

Coming Up in May: Mark Your Calendar Today!

May 9 Friday

Mother's Day Luncheon

Bring your mother and your special friends to the Garden for our annual Mother's Day Luncheon under the outdoor tent. This year the event will feature a showing of charming spring fashions by Dillards. $40 members, $50 non-members. Watch for your invitation in the mail, or call (314) 577-9500 by May 5 for reservations.

May 10 Saturday

A Special Garden Expo Event: "Decorate a Potted Plant for Mom!"

10 a.m. to 2 p.m., in the outdoor tent at Ridgway Center. Create your own decorated container and pot a special plant to take home for Mom. For children ages 4 to 12, $3 per potted plant. Sponsored by the Members' Board.

1997

Missouri Botanical Garden Travel

Natural History Adventures

Coastal Spain and the Canary Islands
April 11 – 28 • $4,815 from Madrid

The Nature Place: Colorado Rockies
July 5 - 11 • $ 825/Adults, $ 550/Children

Galapagos: Darwin's Enchanted Isles
August 6 – 16 • $3,398 from Miami

Kenya: A Grand Safari
October 19 – 31 • $4,385 from St. Louis

Please call (314) 577-9506 for additional information.

GARDEN GATE SHOP

All proceeds from sales in the Garden Gate Shop support the Missouri Botanical Garden.

Announcing —

New Bridal Registry

A very special new service from the Shop! Each bride who registers will receive 25 free announcement cards, and additional cards will be available at a nominal fee. Brides will be notified when items are special-ordered for her. To register you may visit the Shop, or call 577-0211 or 577-5137 to arrange for an appointment.

New in the Shop —

"Beanie Babies"

The popular new stuffed animals for children, featuring a pink flamingo Beanie Baby, especially for the Flamingo Fly-In on April 24 and 25!

MBG Compost

The Garden has teamed up with St. Louis Composting, Inc., to produce an excellent bagged compost. Proceeds from sales of the compost benefit the Garden and support the recycling of yard waste in the St. Louis area.

MBG Cookbook

The *Garden Gate Cookbook* features favorite recipes from Garden staff and volunteers, with charming illustrations by Cindy Aderman. $14.95.

Special Sales

March 1— April 15:
Selected jewelry will be on sale, featuring closeout items at 50 percent off — no other discounts will apply.

March 15 — April 15:
All birdfeeders are discounted 20 percent. With the usual members' discount, members take 30 percent off!

Spring Plant & Gift Sale

April 17 & 18, Thursday & Friday: 9 a.m. to 6:30 p.m.

April 19 & 20, Saturday & Sunday: 9 a.m. to 5 p.m.

Kick off Garden Expo with our wonderful annual sale, featuring a 20 percent discount for members. Annual bedding plants, flowers, vegetables, perennials, herbs, summer-flowering bulbs, hybrid teas and miniature roses, hardy azaleas, and blooming hanging baskets, including new varieties and old favorites for Midwest gardens. Also featuring special promotions by Hu-More, Gro-Brick, and Schultz.

Portmeirion Trunk Sale will feature pieces not usually available in the Shop; with every Portmeirion purchase of $200 or more after discount, you will receive their exclusive Missouri Botanical Garden herb pot.

April 19 & 20, 9 a.m. to 5 p.m.: Jim Chrisco's handcrafted copper fountains; Green Tree Forge, decorative blacksmith.

March 1 & 2
Saturday and Sunday

Meet Winnie the Pooh

The "silly old bear" will be on hand to greet children of all ages. Visit Pooh Corner in the Shop for a large selection of toys and "bee" merchandise.

March 11 Tuesday

Meet the Portmeirion Designer

10 a.m. to 2 p.m. Meet Anwyl Cooper-Willis, chief designer for Portmeirion and designer of the "Pomona" and "Holly and Ivy" patterns, who will be on hand to sign pieces of Portmeirion china. She is the daughter of Susan Williams-Ellis, the originator of the "Botanic Garden" pattern. The Shop is featuring the special 25th anniversary pieces of "Botanic Garden."

March 15 Saturday

Members' Day

Members receive an additional five percent discount on bonsai trees, pots, and tools, Oriental decorative gifts, and gardening books.

March 17 Monday

St. Patrick's Day

Celebrate with colorful potted shamrocks and oxalis, plus holiday flags, mailbox covers, windsocks, and more.

March 22 & 23
Saturday & Sunday

Meet Peter Rabbit

Everyone's favorite bunny will be on hand to greet visitors. Celebrate Easter on March 30 with colorful blooming lilies, hydrangeas, azaleas, and spring blooming bulbs, plus playful plush bunnies, tabletop decorations, porcelain floral eggs, toys, and a large selection of beautiful Easter baskets. Featuring enchanting original designs by woodcarver Eddie Walker, reproduced in resin and handpainted in playful detail.

April 30 Wednesday

Members' Day

Members receive an additional five percent discount on bedding plants, bulbs, perennials, and gardening tools.

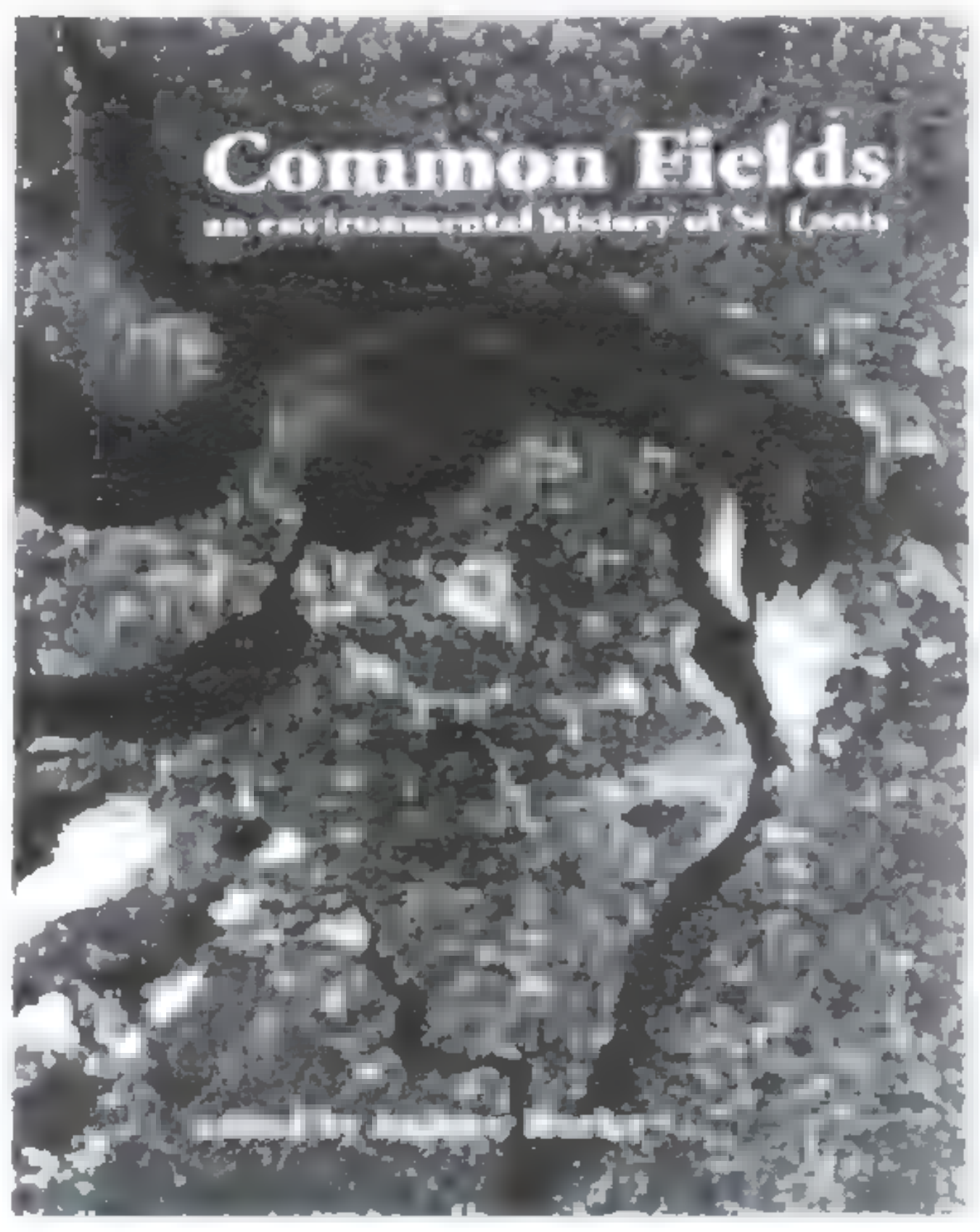
New Book

Common Fields: An Environmental History of St. Louis

Edited by Andrew Hurley. Missouri Historical Society, distributed by the University Press of Kansas. 352 pages, index, illustrated. $19.95 paper, $29.95 cloth.

A collection of 13 essays explores the historic relationship between urbanization and environmental change in the St. Louis region. From the rise and fall of the Cahokia Mounds civilization nearly one thousand years ago to the devastating flood of 1993, residents of the St. Louis region have depended on this rich landscape even as their actions have threatened its continued bounty.

Peter Raven writes, "Understanding the struggles of earlier generations of St. Louisans with sewage, pollution, smoke, fire, and other environmental hazards helps us appreciate where we are now and how we got there — even more importantly, it posts some clear directions for the better management of our area in the future."



Booksigning & Lecture

On April 5, join Andrew Hurley for a lecture in Shoenberg Auditorium at 11 a.m., followed by a booksigning in the Shop from 11:30 a.m. to 1 p.m. Dr. Hurley is an associate professor of history at the University of Missouri-St. Louis.

Board of Trustees Holds Annual Meeting

PHOTOS BY CLIFF WILLIS

Officers of the Board (from left): Stephen Brauer, William Bush, and David Kemper, with Michael Olson, secretary to the Board

ON FEBRUARY 5, 1997, the Board of Trustees held its annual meeting at Spink Pavilion. Officers reelected were William H. T. Bush, president; David W. Kemper, first vice president; and Stephen F. Brauer, second vice president. Three trustees were reelected for four-year terms: Pamela A. Ebsworth, the Rev. Earl E. Nance, Jr., and Robert B. Shapiro.

Four members of the Board were honored for their years of service. Henry Hitchcock, Sydney Shoenberg, John K. Wallace, Jr., and William Bush received thanks and appreciation for their collective total of 105 years of service to the Garden.

Henry Hitchcock, who was unable to be present, has served on the Board for over 50 years. A member of the Hitchcock family has been represented on the Garden's Board ever since 1889.

Mr. Hitchcock served as president of the Board from 1962 to 1967 and as acting director from 1963 to 1965. In his final year as president, the Garden achieved a balanced budget for the first time in its history. The support of Mr. Hitchcock and his family for the Garden has truly been extraordinary in its generosity and commitment.

Sydney Shoenberg (left) with William Bush

Sydney M. Shoenberg has been a member of the Board since 1972. He and his family have made possible many of the major features that enhance the Garden today, including the Shoenberg Auditorium in the Ridgway Center, the Shoenberg Fountain, the Shoenberg Temperate House, and most recently the renovation of the Shoenberg Administration Building. In addition to his generosity during the past 25 years, Mr. Shoenberg's hours of service to the Garden are too numerous to count.

William Bush and John Wallace (right)

John K. Wallace, Jr. became a trustee of the Garden in 1982. His leadership as president of the Board and during the Partnership Campaign have been exceptional. During his term as president, 1993 to 1996, an extraordinary range of major accomplishments were achieved at the Garden, including the successful launch of the most ambitious capital fund drive in the Garden's history and the membership level surpassing 32,000 households. In addition, the Brookings Interpretive Center was dedicated, a project with strong support from the Wallace family. In his fifteen years on the Board, Mr. Wallace has made an enormous personal commitment to the progress of the Garden.

William H. T. Bush, who was recognized for 15 years on the Board, currently serves as its president. He was elected to the position in 1996. Under his continuing leadership, the Partnership Campaign has currently raised $32 million of its $37 million goal, including the completion of the Kemper Center demonstration gardens and the construction of the new Chinese and Boxwood gardens. His generosity to the Garden is matched by his extensive involvement with many other institutions in the St. Louis community.

E. Desmond Lee Receives Civic Awards

EDGAR DESMOND LEE, a member of the Garden's Board of Trustees since 1996, was named St. Louis Man of the Year by the *St. Louis Post-Dispatch* in December, joining a roster of 44 St. Louisans whose outstanding contributions to the community have been honored since the award was established in 1955. Mr. Lee was chosen for the award by the 22 surviving recipients of the Man of the Year Award, including Garden trustees or former trustees Howard F. Baer, Dr. William H. Danforth, Clarence C. Barksdale, Charles F. Knight, and the Garden's director, Dr. Peter H. Raven.

In addition, Mr. Lee received the Right Arm of St. Louis Award from the Regional Commerce and Growth Association at their annual Volunteer Recognition Luncheon on January 16, 1997. The Right Arm of St. Louis is the RCGA's most prestigious award, presented to one individual each year in honor of outstanding civic leadership and community service.

Since 1993, Mr. Lee has donated or committed more than $22 million to leading St. Louis institutions to support education programs. His first major gift, in 1994, was made to the Garden, together with the St. Louis Science Center and the Saint Louis Zoo, to establish a science outreach program for inner-city children. In 1995, Mr. Lee and his wife made the naming gift for the E. Desmond and Mary Ann Lee Family Educational Center at 4475 Castleman, a building that provides expanded facilities for the Garden's Education Division.

Dr. Peter H. Raven said, "Des Lee sets an example for us all with his generosity, which is not just financial but personal. He is truly committed to improving the future for all St. Louisans, especially the less privileged members of our community." Mr. and Mrs. Lee were honored with the Garden's highest award, the Henry Shaw Medal, in 1995.

PHOTOS BY CLIFF WILLIS

Construction Update—

During the winter months, much of the activity moved indoors on the Garden's new Research Center, the major component of the capital fund campaign. Top, left: Large windows illuminate the interior on the south side of the building. Abundant natural lighting will dramatically reduce energy consumption in office spaces. Below, left: Tracks for compactor shelving run the length of the building on the cooler north side. With minimal windows and extra insulation, the north side of the building is designed to maintain strict climate controls to protect the priceless collections in the herbarium and library.

Members Honor Peter Raven's 25th Anniversary

In Tribute to Dr. Peter H. Raven on his 25th anniversary as director of the Garden, members and friends made donations to the Garden in extraordinary numbers during 1996. "These gifts are outstanding, not just for their generosity, but for the numbers of members who participated," said Patricia Arnold, director of development.

William Bush, president of the Board of Trustees, wrote to the Garden membership, "Peter Raven's inventive leadership, his exuberance and tenacity, drove [the Garden] to a new and more visible level of distinction....As a member of the Garden's family, you have played an important role over the years in helping Peter work what can only be described as magic."

In response, during 1996 the Henry Shaw Associates and Garden Fellows gave more than $100,000 in Dr. Raven's honor to help support the Flora of North America project. And the Garden membership as a whole responded to the annual Henry Shaw Fund appeal with unprecedented generosity, raising an additional $100,000 to support daily operations.

Peter Raven said, "I am overwhelmed by the kindness and generosity of everyone who contributed to the Garden in honor of my anniversary. I am very honored, and more grateful than I can say. My heartfelt thanks go to one and all."

A Challenge for the Future

The Research Center Needs Your Support

WATCH YOUR MAIL IN APRIL! With the phrase "We're Saving the Earth...Just Around the Corner," you will soon be asked to contribute to the Garden's new Research Center. This opportunity is enormously important to all members, for it will allow the Garden to meet a $1 million challenge grant from the Kresge Foundation.

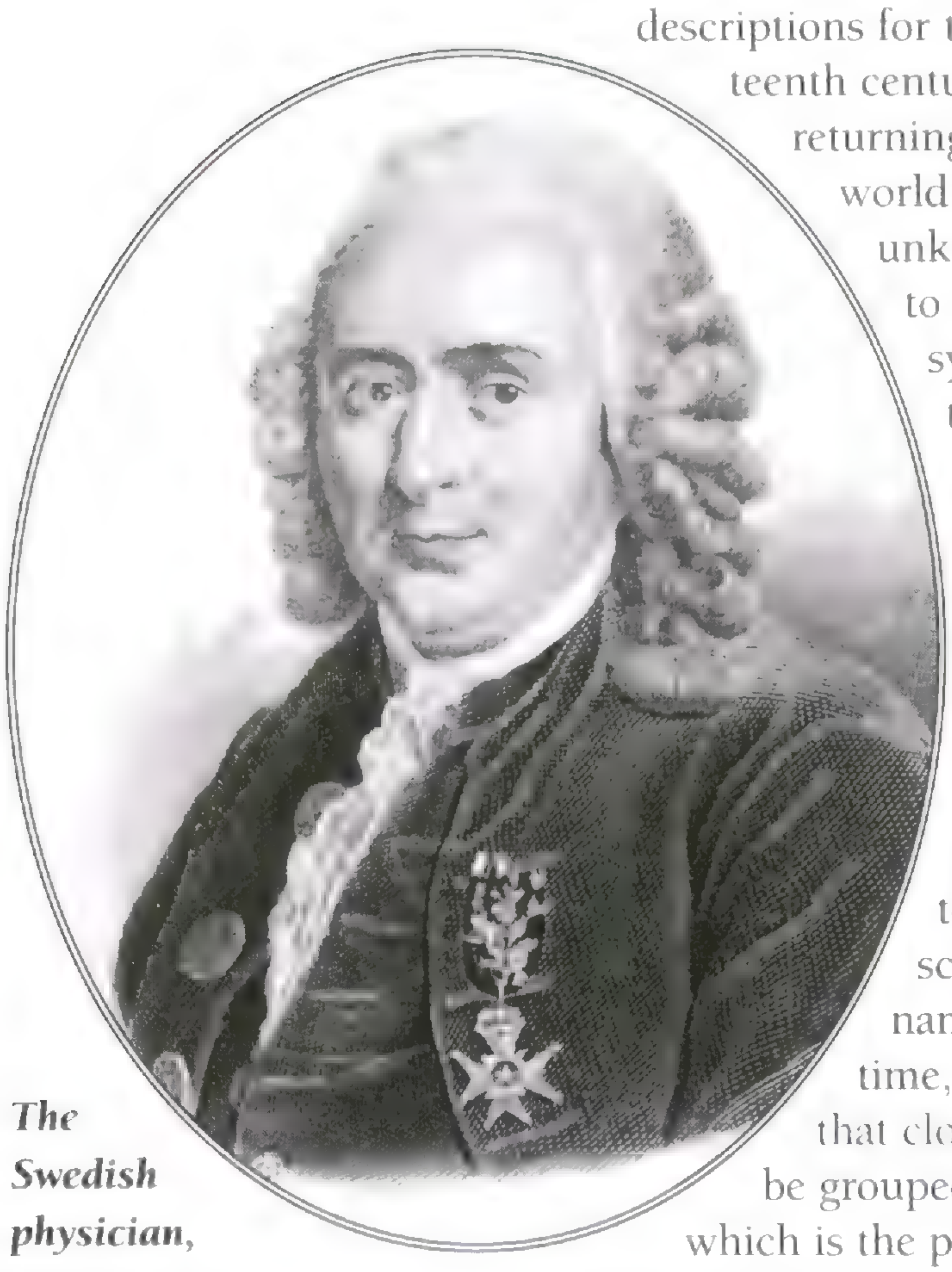
This is your opportunity to contribute to the Partnership Campaign, if you have not already done so — a chance to be part of the Garden's future. By showing your support now, your donation will play a significant part in meeting the challenge to end the campaign when matched by the Kresge Foundation grant.

Your gift may be large or small, but your participation is crucial. The Garden will not receive the matching funds unless enough people participate, so please join the Partnership Campaign today!

What's in a **Name**?

THE first reaction of many people to the use of scientific names is to throw up their hands and despair of those pesky Latin names. As it turns out, they're not as scary as you might suspect and, without them, we might not be able to communicate very effectively about plants and animals. The following brief account explores the history and features of the system we use to provide names for living things.

People from all over the world, of course, have been giving names to plants and other organisms since ancient times. In Europe in the Middle Ages, herbalists and others who studied plants often gave them phrase names, called "polynomials," that consisted of two or more descriptive words. These phrase names were in Latin, the language of scholarship of the time.



The Swedish physician, botanist, and zoologist, Carl Linnaeus (1707-1778)

FROM THE MISSOURI BOTANICAL GARDEN ARCHIVES

Different people might use different phrase descriptions for the same plant. By the seventeenth century, European explorers were returning from many parts of the world with large numbers of unknown plants. These all had to be given names. The old system was cumbersome, and the time was ripe for a change in the way plants were named.

The Swedish physician, botanist, and zoologist, Carl Linnaeus (1707-1778), was the architect of the innovations in nomenclature that we still use today. Nomenclature is the science or process of applying names to things. By Linnaeus's time, it was already recognized that closely related organisms could be grouped together into genera, which is the plural of the word genus.

Linnaeus's goal was to classify all known plants and animals according to their genera. One part of his scheme was to group related genera together, but that classification system long ago fell out of use because it did not always reflect true relationships.

The way Linnaeus named the species, though, proved popular. Along with the genus name, he provided a second name as a kind of a shorthand way to refer to the plant. We call that second word the "specific epithet." The specific epithet served as a way of distinguishing each species within the genus.

Linnaeus established this practice of binomial nomenclature in his two-volume book, *Species plantarum*, published in 1753. Botanists take the publication of that work as the starting point for our present system of nomenclature.

Following the precedent established by Linnaeus, such names are still in Latin or in Latinized form. The genus name always begins with a capital letter, while the specific epithet starts with a lower case letter. By convention, these are italicized or underlined in print.

Sometimes it is forgtten that Linnaeus named organisms other than plants. He applied the same concepts of nomenclature to them. Another of his publications, the tenth edition of *Systema naturae*, published in 1758, serves as the starting point for binomial nomenclature for animals.

The general principles and methods of nomenclature set down by Linnaeus have not changed since his time. By the mid-1800s, though, it became clear that formal, written rules were needed to ensure that the increasing number of botanists and others working with plants would be operating in a similar manner.

Efforts to produce these guidelines evolved into a set of internationally accepted rules and regulations; these are published as the International Code of Botanical Nomenclature (ICBN). Periodically throughout this century, botanists have gathered to study and refine these rules. The last such meeting was held in 1993 in Tokyo. The next International Botanical Congress will be held in St. Louis in 1999, and the gathering again will examine a wide range of issues affecting the way we name plants.

Even though binomial nomenclature has been around for almost 250 years, reasons are still mentioned for not wanting to use it. Often people say that the names are hard to pronounce. Who speaks Latin anymore?

It is true that some scientific names are difficult to pronounce. It is also true that no two people may have the same pronunciation for a scientific name; sometimes it comes down to a matter of personal taste. But it is also true that many scientific names closely approximate the common names, especially when they refer to garden plants. This point is well illustrated if a gardener grows asters, genus *Aster*, begonias, *Begonia*, impatiens, *Impatiens*, peonies, *Paeonia*, or verbenas, *Verbena*.

Not only are the Latin names said to be hard to pronounce, but just what do they mean? Sometimes the scientific name tells you something about the plant. *Lavandula angustifolia*, common lavender, is a species whose plants have narrow (*angust*) leaves (*folia*). *Paeonia californica* is native to California. Other plants are named after people; *Linnaea* honors Carl Linnaeus, and *Magnolia wilsonii*, a rare and endangered Chinese magnolia, commemorates its discoverer, the plant collector E. H. Wilson (1876-1930). Other names can be made up in various ways, as long as they are put in Latinized form.

Another frequent complaint is that someone is always changing scientific names, so that familiar names go by the wayside. It is true that scientific names do sometimes change, but this is certainly not done with malicious intent!

According to the ICBN, there are two valid reasons for changing a name. The first of these is rather straightforward: a name formed or used in a way that is contrary to the formal rules must be set aside in favor of one that conforms to the rules. The second results from the accumulation of scientific evidence about the relationships of plants. Based on studies, opinions and concepts about genera and species change over time, and modifications may have to be made in the way they are classified.

A situation to illustrate this occurs when a botanist studies two genera and realizes that they are not sufficiently distinct from one another to be kept apart; the species in both genera are then combined under one of the generic names. As an example, the genus *Jussiaea* in the evening primrose family, Onagraceae, was long regarded as distinct from another genus, *Ludwigia*, the false loosestrifes, in the same family. A careful study of the species in the two genera has shown that the technical distinctions between them are minor and do not warrant keeping them separate. Following the rules, the name *Ludwigia* is now used for the combined genus.

Another source of confusion is in the naming of families. In classification schemes, closely related genera are grouped together into a larger category, the family. In botany, the family name is based on the name of one of its genera and always ends in the same five letters: "aceae". For example, the name of the rose family, Rosaceae, is based on one of its genera, *Rosa*.

In eight cases, however, the ICBN allows the use of an alternate name because of long use. These include the names for the aster family, Asteraceae or Compositae, the bean family, Fabaceae or Leguminosae, the mustards, Brassicaceae or Cruciferae, the mints, Lamiaceae or Labiatae, the grasses, Poaceae or Gramineae, the palm family, Arecaceae or Palmae, St. John's wort family, Clusiaceae or Guttiferae, and the carrot family, Apiaceae or Umbelliferae. Don't be confused if you find a familiar plant listed under one or the other of these alternative family names.

One other question is often heard: Why don't we just use the common name for a plant? Some of these were discussed in an earlier article (see the *Bulletin*, January/February 1997). Any given plant may have one or more common name, or not have one at all. They may vary from place to place, or be in different languages. The same common name may apply to more than one species. Simply put, there are no guidelines dictating the use of such names.

In contrast, each plant species can have only one correct scientific name. Because the application of scientific names is governed by internationally accepted rules as outlined in the ICBN, those names are recognized throughout the world. Use of scientific names allows us to organize and index the accumulated knowledge about plants, and then to disseminate it in useful form to anyone anywhere on the planet.

– Dr. Alan W. Lievens, M.D., Ph.D., MBG horticultural taxonomist

Herb Society Publishes New Book

Look for *It's All In The Name*, a new book from the St. Louis Herb Society, compiled and edited by Melanie Marshall Fathman and Barbara Reber Ottolini. This is an invaluable guide through the labyrinth of confusing names for herbs. With a forward by Dr. Alan Lievens, who consulted on the book along with Dr. Marshall Crosby, the Garden's senior botanist, the 64-page book is available in the Garden Gate Shop for $6.

Behind the Scenes

Patricia Arnold Is Named Director of Development

In January, Dr. Peter H. Raven announced the appointment of Patricia Reardon Arnold as Director of Development for the Garden. She will be responsible for directing fund raising, including supervision of the Partnership Campaign, direct mail, telemarketing, and the membership program.

Dr. Raven said, "Patty is an outstanding individual and an accomplished fundraiser. She knows the Garden and the community very well, and we're delighted she has accepted this challenging new position at the Garden."

Mrs. Arnold is well known to Garden members and staff. She worked as coordinator of membership services from 1981 to 1984 and as a volunteer on the Members' Board from 1988 to 1994, serving as second vice president in 1992. In 1993 she coordinated the Proposition E campaign. In 1994 she rejoined the staff of the Development Division full time as capital campaign coordinator. She was promoted to manager of development in 1995 and served as interim director of the Development Division from May, 1996, until her appointment as director. A native St. Louisan., she graduated from Villa Duchesne High School and the University of Missouri-Columbia.

Patricia Arnold said, "I am very excited about the opportunity Dr. Raven has offered me. The Garden is one of the finest cultural institutions in the world, with one of the largest membership bases anywhere. I look forward to continuing to work with all of the people who care about the Garden and its future."

Jerry Conley Is New Director of Conservation Department

The Missouri Conservation Commission has appointed Jerry Conley as the sixth director of the Missouri Department of Conservation, succeeding Jerry J. Presley, who retired. Mr. Conley began his duties in Jefferson City in October, 1996.

Before his appointment, Conley had served as director of the Idaho Department of Fish and Game since 1980, following jobs in fish and game management in Kansas, Iowa, and Utah. He grew up in Cape Girardeau, Missouri, and attended Southeast Missouri State University there. He graduated from University of Missouri-Columbia. Under Conley's leadership, the Idaho Fish and Game Department grew from a small, underfunded agency to one that has won many awards for its innovative programs.

For many years, the Missouri Department of Conservation has provided major support and collaboration for many projects at the Garden, including the native plant areas in the Kemper Center demonstration gardens, habitat restorations and the "People on the Land" exhibit at Shaw Arboretum, the Neighborhood Greening Program, and several projects of the Center for Plant Conservation. Currently the Department is sponsoring the Midwest Rare Plant Conference and Task Force Meeting, the "Witness" exhibit at the Garden, and the annual Prairie Day at Shaw Arboretum. And for the past several years the Department and the Garden have been collaborating to produce the revised Flora of Missouri.

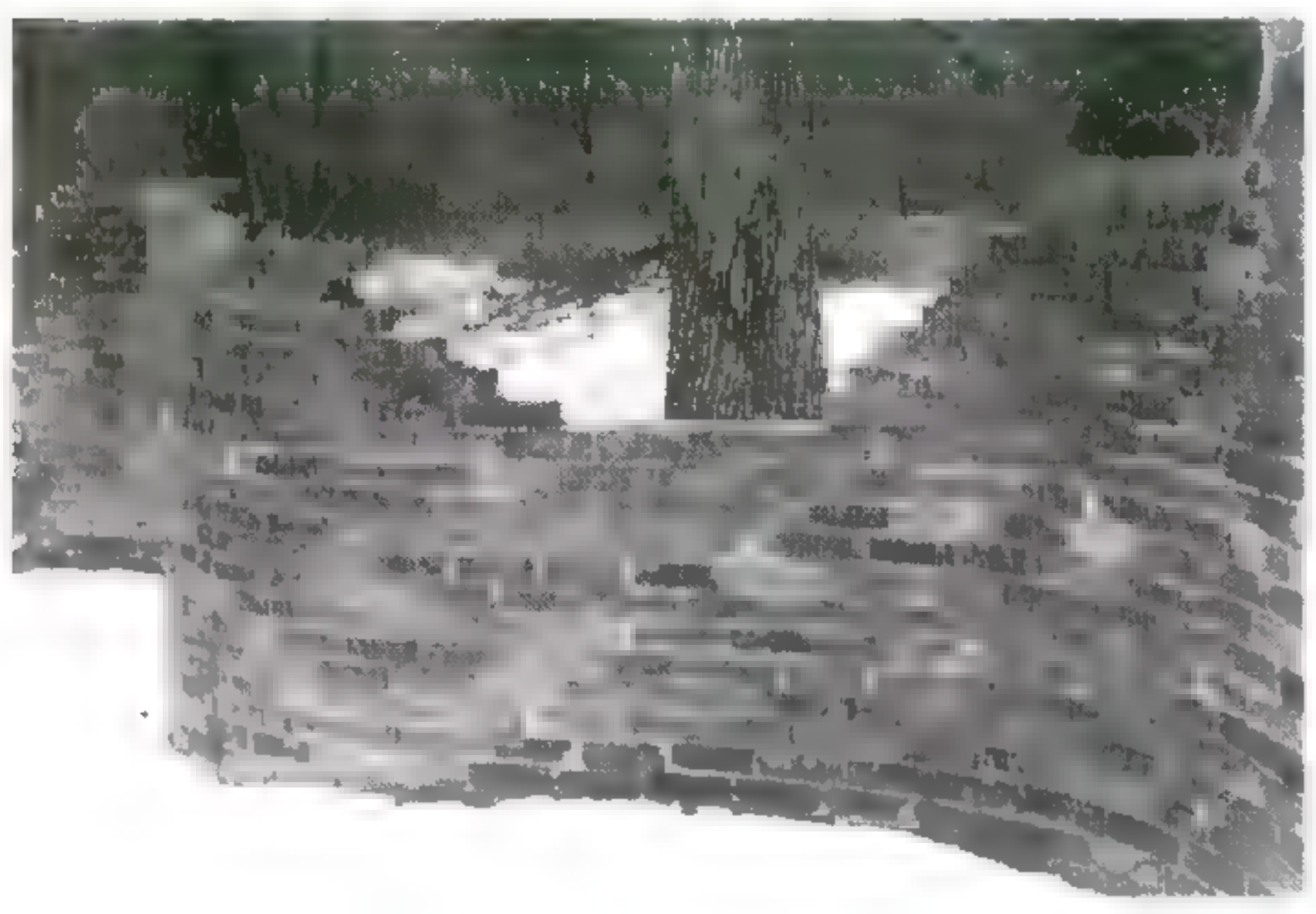
Peter H. Raven said, "We look forward to working with Jerry Conley and continuing our wonderful relationship with the Missouri Department of Conservation. Our close collaboration to achieve mutual goals has been enormously beneficial over the years, not just for the Garden but for all the people of our region."

Volunteers, We Need You!

For more information about the following opportunities at Shaw Arboretum, please call the Arboretum, Monday through Friday between 8:00 a.m. and 4:30 p.m., (314) 451-3512.

Volunteer Naturalists Shaw Arboretum is recruiting Volunteer Naturalists to lead seasonal week-day tours in the Whitmire Wildflower Garden and to conduct Wilderness Wagon and bus tours. If you can speak informatively and enthusiastically to groups of varying sizes, and if you are interested in learning about the Arboretum, its plants, and its natural history, this exciting opportunity is for you! Training sessions are tentatively scheduled to begin the third week of March. During the first session, the staff will describe their expectations for the volunteers and provide orientation, including a tour of the Whitmire Wildflower Garden, around the loop road, and through the Joseph H. Bascom Manor House. You will have the option to be trained as a guide for any or all of the tour areas. Additional training sessions will be required.

Stone Mason/Bricklayer In 1946, a brick serpentine wall was constructed at the Arboretum, located between Wolf Run Lake and Brush Creek. Built to provide a windbreak on two sides of a three-acre boxwood garden, now defunct, the wall was patterned after the serpentine wall designed by Thomas Jefferson for the University of Virginia. The idea to build the wall is credited to August Beilmann, who was serving as Arboretum manager at the time. Made of red clay bricks, the wall is 649 feet long, five feet high, and rests on a reinforced concrete footing. Although it is only one brick thick, the wall gets its strength from its curved, or "serpentine," design. The boxwood garden associated with the wall is now gone, but the wall still stands, although it is in need of some skilled work to restore its former beauty.



SARAH HICKS

Clerical Volunteers

For information on the following opportunities at the Garden, please call Jeanne McGilligan, manager of volunteer programs, Monday through Friday, 8:30 a.m. to 5 p.m., at (314) 577-5187.

The volunteers who assist with daily office duties at the Garden are not visible to the public, but smooth operations would be impossible without them. Keep your skills current, learn new ones, and meet wonderful co-workers! Several departments at the Garden are currently seeking skilled office help:

Center for Plant Conservation The CPC needs volunteers to assist with daily office operations. They especially need someone to organize the many materials that come through the office and maintain their slide collection and library.

Human Resources Division The Volunteer Office is seeking an individual to work at least five hours a day on Mondays or Thursdays. Duties include data entry, special events recruiting, and occasional employment-related activities.

Public Relations The Public Relations Office is looking for assistance three to four hours a day, one day a week, including keeping clipping scrapbooks up-to-date, filing, and faxing.

Public Events Another volunteer is needed to work with the Events Coordinator to help with Garden events and assist with mailings. Scheduling for this job can be very flexible.

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GardenExpo

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SIX WEEKENDS
APRIL & MAY 1997

APRIL 17, 18, 19 & 20 DIG INTO GARDENING MBG Spring Plant Sale • Bedding Plants • Growing Bulbs • Greenhouse Tours • Potting Marigolds **APRIL 26 & 27 BLOSSOMS, BIRDS & BEES** Summering Indoor Plants • Soil Preparation • Birdfeeder Contest • English Woodland Garden Tours • Yard Art • Flamingo Fly-In **MAY 3 & 4 GRAND OPENING** Kemper Garden Tours • Costumed Characters • Music • Edible Flowers • Vegetable Gardening • Lawn Care • Dividing Perennials • Potting Herbs • African Violet Show **MAY 10 CONTAINER GARDENING** Tropicals for Containers • Pruning Flowering Shrubs • Pot a Plant for Mom • Tours of Japanese Garden • Rose & Dahlia Society Sales • Seed Savers Exchange **MAY 17 & 18 CHINESE FESTIVAL** Stage Shows & Processions • Chinese Garden Tours • Herbs in Containers • Water Gardening • Herb Society • Horticulture Society Show • Medicinal Plants **MAY 24 & 25 FRAGRANCE GARDENING** Fragrant Plants • Butterfly Gardening • Potpourri for Kids • Boxwood & Rose Garden Tours • Rose Society Show

SEE PAGES 12 & 13 FOR ALL GARDEN EXPO EVENTS!

Missouri Botanical Garden BULLETIN (ISSN 0026-6507)
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MAY/JUNE 1997

GardenExpo '97
Four Weekends in May – See Page 3

VOLUME LXXXV
NUMBER THREE

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

THERE is so much to see and do this spring at the Garden and Arboretum, I hope each of you will be able to attend every special event we have planned. With the construction and new plantings complete, the Garden has never looked lovelier.

This issue of the *Bulletin* features home gardening, celebrating the joys of flowers and fragrance to coincide with Garden Expo and Rose Evening. The new Kemper Center demonstration gardens are featured each weekend in May during Garden Expo, and you will find articles on the Fragrance Garden and Flower Borders beginning on page 8. For Rose Evening, we have an introduction to our award-winning rose collection and our new rosarian, Diane Breuckman, on page 15, together with her article on growing the very popular new David Austin Roses.

The glorious Whitmire Wildflower Garden at Shaw Arboretum is a wonderful place to get new ideas on gardening with showy native plants, and the Arboretum's annual Spring Wildflower Sale offers a great way to get them for your garden, with the best selection of native flowering plants in the region. While you're visiting the Arboretum, take time to enjoy all the new features that add so much to its natural beauty.

With extended summer hours, the Garden is a wonderful place to visit in the evenings. The Whitaker Jazz Festival returns on Wednesdays this summer, bigger and better than ever. And be sure to attend the special evening concert by nationally recognized recording artists Tingstad and Rumbel, who will perform to benefit the Center for Plant Conservation at a special outdoor evening concert on May 18. — *Peter H. Raven, Director*

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400

24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522

You will need a touch-tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401

Information on jobs and volunteer opportunities at the Garden is available with a touch-tone phone. Listings are updated bi-weekly.

Horticultural Answer Service: 577-5143

9:00 a.m. to noon, Monday through Friday.

Master Composter Hotline: (314) 577-9555

9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:
http://www.mobot.org/

Mailing Address:

Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours

9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Kemper Center for Home Gardening:

9 a.m. to 5 p.m. daily; Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop:

9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: 9 a.m. to 6:30 p.m. daily, Friday and Saturday open until 7 p.m. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant:

Buffet service during hours the grounds are open.

Tower Grove House: 9:45 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January. Admission is free for Garden members.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 40 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. Admission is free for Garden members. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House open 10 a.m. to 4 p.m. daily, closed on Mondays. For information call (314) 451-3512.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this Bulletin and mail to:

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Date effective: ____________

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On the Cover

See the outdoor demonstration gardens at the Kemper Center for Home Gardening during Garden Expo 1997!
– Photo by Jack Jennings

Editor
Susan Wooleyhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members. For information, please call (314) 577-5118.

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On the cover: The Dancing Flowers are just one of the highlights planned for the Members' Grand Opening on May 3. Pictured, from left: Emily Reardon, Mary Kate Doherty, Corrie Griesedieck.
— *Tim Parker photo*

GardenExpo

Four Weekends in May

10 a.m. to 5 p.m. daily

Celebrate the grand opening of 23 new demonstration gardens at the William T. Kemper Center for Home Gardening with entertainment, workshops, demonstrations, tours, gift shop promotions, and lots more!

- Information Booth — experts from the Garden's horticulture staff are on hand to answer your gardening questions
- Cappucino Wagon or Food Cart
- Treasure Hunt for Kids — win a free coloring book

May 3 & 4
Saturday & Sunday

Grand Opening

Saturday — Members' Dedication and Grand Opening Ceremony
10 a.m., Kemper Center. Music, performances, seed giveaway, attendance prizes.

Sunday — Public Opening
Costumed characters and music, both days.

Hands-on Workshop:
"Edible Flowers," 11 a.m. daily, Summer Plant House

Demonstrations:
"Vegetable Gardening," "Lawn Care," "Dividing Perennials," 1 p.m. daily, Kemper Center Gardens. Evening Herbalists, 10 a.m. to 5 p.m. daily.

For Kids: "Potting Herbs," 10 a.m. to 2 p.m. daily.

Kemper Garden Tours:
11 a.m., noon, and 2 p.m. daily.

African Violet Show and Sale: 9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. 42nd annual show and sale by the Metropolitan St. Louis African Violet Council.

Garden Gate Shop: May 3: Recipe tasting from the *Garden Gate Cookbook;* illustrator Cynthia Aderman will autograph cookbooks from 11 a.m. to 2 p.m. Both days: Kevin Garber's tiles, Sandy Alspaugh's watercolor prints, Grette Herrick's *Edible Wildflowers.*

Lecture: "Perennials for the Lower Midwest," by author Ezra Haggard. Saturday May 3, noon, Shoenberg Auditorium. Booksigning in the Garden Gate Shop follows the lecture.

May 10 Saturday

Container Gardens

Hands-on Workshop:
"Tropicals for Containers," 11 a.m. daily, Summer Plant House.
Demonstration: "Pruning Flowering Shrubs," 1 p.m. daily, Kemper Center.
For Kids: "Decorate and Plant a Flower Pot for Mom," 10 a.m. to 2 p.m. daily, under the tent at the Ridgway Center. Fee: $3 per potted plant, for children ages 4 to 12. Sponsored by the Members' Board.
Japanese Garden Tours
11 a.m. and 2 p.m. daily.
Plant Societies:
Rose Society Mini-Sale, 9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall.

Dahlia Society Sale, May 11 & 12, 9 a.m. to 5 p.m. daily, Beaumont Room
Garden Gate Shop: 9 a.m. to 5 p.m. daily, Raku pottery by Carol Swift and Jozart's hand-painted containers.

May 17 Saturday

Chinese Culture Day

Performances, stage shows including the Yellow River Performing Arts Group from Chicago, the Lion Dance, cooking demonstrations, family activities, and tours of the Margaret Grigg Nanjing Friendship Garden at 11 a.m. and 2 p.m.

May 17 & 18
Saturday & Sunday

Herb Gardening

Hands-on Workshop: "Herbs in Containers," 11 a.m. both days, Summer Plant House
Demonstration: "Water Gardening," 1 p.m. both days, Kemper Center.
St. Louis Horticulture Society Show and Sale
Noon to 5 p.m. both days, Orthwein Floral Display Hall
Garden Gate Shop:
Saturday 9 to 5, Crabtree & Evelyn offers free samples of their fragrance *Song de Chine.*
For Kids: St. Louis Herb Society Activity for Kids, Sunday May 18, 10 a.m. to 2 p.m., Kemper Center
Lecture: "Medicinal Herbs of the Midwest," Sunday May 18, 1:30 p.m., Shoenberg Auditorium, with herbalist Cathy Crandall.
Booksigning:
In the Garden Gate Shop, May 18, noon to 4 p.m.: Connie Kaye and Neal Billington, *Medicinal Plants of the Heartland.*

May 24 & 25
Saturday & Sunday

Fragrance Gardening

Hands-on Workshop:
"Fragrant Plants," 11 a.m. daily, Summer Plant House
Demonstration: "Butterfly Gardening," 1 p.m. daily, Kemper Center Gardens
For Kids: "What's the Buzz?" pollination game and "Make a Potpourri Sachet," 10 a.m. to 2 p.m. daily, Kemper Center
Tours of Boxwood Garden and the Rose Gardens:
11 a.m. and 2 p.m. daily.
Special Program May 24:
"Purple Martins" with W. Ashley Gray III, the Garden's honorary curator of purple martins. A program at 3 p.m. in Shoenberg Auditorium will be followed by a visit to the Kemper Center Bird Garden.
Rose Society Show:
Noon to 5 p.m. Saturday, 9 a.m. to 5 p.m. Sunday, Orthwein Floral Display Hall.
Garden Gate Shop: Cheryl's Herbs aromatherapy display.
Puppet Shows:
Sunday May 25, noon and 1:30 p.m., Beaumont Room: EMagine Puppets presents "Three Billy Goats Gruff and Root Ed" and "Peter Rabbit Grows a Garden."
Prize Drawing: Register to win a mini-greenhouse, sponsored by the Gardeners of America. Drawing on May 25.

Spring Wildflower Sale

Saturday, May 10, 1997 • 10 a.m. to 4 p.m. • Under the Tents near the Main Visitor Center • Regular Arboretum admission: $3 Adults age 12 and over, $2 Seniors age 65 and over, Free to Garden Members.

Come to Shaw Arboretum in Gray Summit, Missouri, for the widest selection of native plants, including the showiest and hardiest species for home landscaping. Also featured are Missouri natives of the prairie, glade, woodland, and wetland. All plants sold are propagated in nurseries, not harvested in the wild. Featuring: Hamilton Seed and Wildflowers, Pan's Garden, Rock Post Wildflowers Nursery, Missouri Wildflowers Nursery, Plants n' Such, Forrest Keeling Nursery, H.E. Nurseries, Rick Clinebell, and Shaw Arboretum.

Seminars during the Sale: Landscaping with Wildflowers, Plant Propagation, Spring Woodland Wildflowers, Native Grasses, Prairie Gardening. Schedules will be posted during the sale.

Proceeds from the sale will benefit the Whitmire Wildflower Garden. Call (413) 451-3512 for more information.

WHITMIRE
WILDFLOWER
GARDEN

New Whitmire Wildflower Garden Video

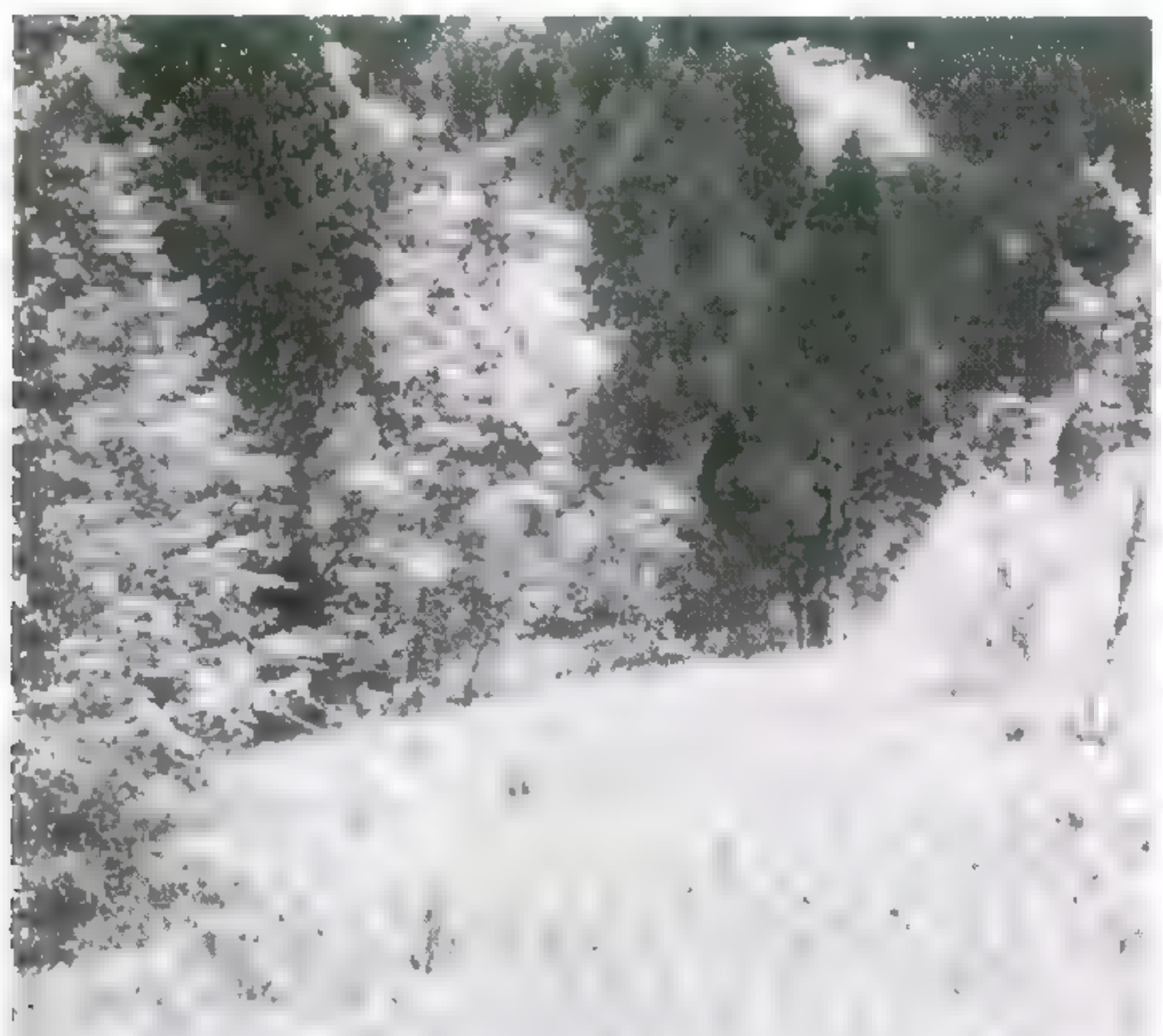
Something about wildflowers captures our imaginations. Perhaps it is their gentle colors in spring or vibrant celebration of summer. Perhaps it is the sight of butterflies fluttering over a field, or of birds gorging on colorful berries. Discover the richness of Missouri wildflowers of the woodland, glade, and prairie with this new video which vividly captures the beauty of the Whitmire Wildflower Garden at Shaw Arboretum through the seasons. *Running time: 20 minutes. Available at the Garden Gate Shop and Shaw Arboretum.*

This Spring at **Shaw Arboretum**

DELLE WILLETT

Volunteers hard at work clearing an Arboretum glade last January.

BILL HALL



Far left: Long Glade at the Arboretum shows the rich diversity of wildflowers that returns quickly after invasive cedars are removed.

Glade Habitat Restoration

Great progress has been made in the ongoing project to restore the Arboretum's extensive dolomite glade complex. These unique rocky meadows are home to a specialized flora and fauna found in no other habitat. At the Arboretum, the glades have become overgrown with eastern red cedar trees, which shade out the sun-loving, drought-adapted wildflowers. Restoring the habitat consists of careful thinning of cedar stands to increase sunlight in the glades.

Shaw Arboretum has the most accessible, intact glade complex in the St. Louis area. Restoration increases its value as a reserve of Missouri native biodiversity and as a resource for environmental education.

The glade restoration project has been made possible by the extraordinary efforts of volunteers, who gave 700 hours of service last year clearing invasive cedars and doing prescribed burning to encourage growth of native wildflowers. The wonderful results of their hard labor are on view this spring, as wildflowers, birds, insects, and other wildlife return to the glades at the Arboretum. *—James C. Trager, Ph.D., staff naturalist*

At left: Working among a small portion of the timber removed during glade restoration, volunteer Jim Jackson splits red cedar logs by hand just as Abraham Lincoln did 150 years ago. The cedar logs are recycled and used in many projects at Shaw Arboretum, including fences, siding, trail borders, observation platforms, and boardwalks. Eastern red cedar is remarkably resistant to rot, making it a valuable source of lumber for outdoor construction; the wood not used at the Arboretum is sold, not wasted.

Wetlands Update

MAY is National Wetlands Month, and Shaw Arboretum invites you to celebrate our natural heritage with a visit to our ever-improving wetlands.

The Shaw Arboretum wetland complex is a constructed ecosystem comprising 20 acres of diverse wetland types located near Brush Creek, downhill from the prairie. Construction for the first permanent pond began in 1991, and a second, shallower pond was added in 1993. The intermittently exposed soil around the two ponds is characterized as "fringe wetland."

A low, flat meadow adjacent to the shallower pond retains water after rains for sufficient time to qualify as a legal wetland, in this case of the "sedge meadow" type. Many interesting "posies and critters" found nowhere else on the Arboretum inhabit this area.

As we develop and manage the wetland vegetation, the upland areas from which water flows into the wetland complex are being developed into a large extension of our prairie, which will nearly double in size by the end of this decade.

New Seasonal Amphibian Pools

Those who haven't visited since early last summer will notice that the straight, mowed path to the wetland from the parking lot has been replaced by a serpentine gravel path. The new path weaves among a group of six shallow earthen pools and several intervening hillocks or low mounds.

The pools are designed to dry out in late summer, providing ideal habitat for spring-breeding amphibians vulnerable to predation by fish, which do not occur in temporary ponds. Spotted and tiger salamanders and peeper and chorus frogs have already discovered the new pools and were performing their vernal Liebesspiel this spring. In early April, the staff transferred several dozen egg masses of least two species of salamanders into the amphibian pools to establish new populations.

Of course, the pools have also been seeded with a beautiful array of appropriate plant species, which should begin appearing this spring. The land between the pools has been sown to prairie plants, with different species on the better-drained hillocks than on the flatter and wetter soils. We ask for your patience, as these perennial vegetation types will take several years to develop fully. Construction of the new amphibian pools was supported by the United States Fish and Wildlife Service.

New Obervation Blind

Another exciting new feature built since last summer is the observation blind, tucked in a cluster of trees near the west pond, nearest to the parking lot. Built from eastern red cedar removed from Arboretum glades during habitat restoration, this structure provides a wonderful elevated view of the water and mudflat areas of the pond and glimpses beyond, while visitors in the blind will remain virtually invisible to wetland wildlife. The observation blind was made possible by a gift in memory of Mary Bronstein by her husband, Robert.

— James C. Trager, Ph.D., staff naturalist

Above: The constructed wetland at Shaw Arboretum is a rich mosaic of habitats, home to hundreds of species of plants, insects, fish, and amphibians.

Left: The new observation blind, shown here under construction, will give visitors a chance to observe and photograph birds and wildlife. The tower was built of cedar removed from Arboretum glades during habitat restoration.

Teacher-Naturalist Janet Dickey leading an Earthwalk class at the Arboretum this spring.

Share the Wonders of Nature as a Volunteer Teacher-Naturalist

Shaw Arboretum is looking for enthusiastic, committed people to work as volunteer Teacher-Naturalists with the education program. The volunteers lead outdoor classes for school children, with activities focusing on sensory awareness and ecology. People who are interested in this position must enjoy working with children, be available during the week, and possess a keen interest in learning-more about natural history. Some knowledge of ecology and natural history is helpful but not necessary. A training program for new Teacher-Naturalists begins in September, 1997. For more information please call Miriam Krone at (314) 451-3512.

MISSOURI BOTANICAL GARDEN ARCHIVES

Preparing for their 1970 sale in the greenhouses are Herb Society members (from left): Mrs. Jack Montaldo, Miss Mary Elizabeth Bascom, and Mrs. D. Goodrich Gamble.

The **Herb** *Ladies*

The St. Louis Herb Society made it popular to grow herbs in this part of the country.

For 56 years the members, visitors, and staff of the Missouri Botanical Garden have had the delightful experience of learning about herbs from members of the St. Louis Herb Society, nicknamed the "herb ladies" by Edgar Anderson, the Garden's late director. Whether you nurture a pot of chives on the windowsill, sample some of their famous curry powder, or simply take a stroll through the charming herb garden behind Tower Grove House, you are enjoying the results of the Herb Society's tireless endeavors.

The St. Louis Herb Society was founded at the Garden in 1941 as a study group, and so it remains today — a group of friends who come together to learn, to share knowledge, and to have fun doing it. Over the years the herbers have published three cookbooks, three reference books, developed and taught a popular annual course on growing herbs, successfully produced plants and products for sale, and raised substantial sums to benefit the Garden, Tower Grove Park, and Gateway Greening, Inc. (formerly Gateway to Gardening).

Every Tuesday morning from March through October, members of the Herb Society gather to work on the herb garden at Tower Grove House in collaboration with the horticulture staff. The Herb Society, whose by-laws limit participation to 60 active members, meets monthly at the Garden, in addition to workshops held at members' homes. The group also maintains a speakers' bureau. Members share their expertise in everything from the history, myths, and taxonomy of herbs, to gardening, cooking, and crafts.

Eleven charter members held their first meeting in the Museum Building at the Garden on February 11, 1941. Edgar Anderson, the distinguished botanist and teacher who served as the Garden's director from 1954 to 1958, helped found the group in response to a request from Mrs. Mary Baer. Dr. Anderson had helped to establish the Herb Society of America in Boston in 1932, while teaching at the Arnold Arboretum of Harvard University.

The group founded here was known as the St. Louis Unit of the Herb Society of America until 1954, when they incorporated as the St. Louis Herb Society, a separate not-for-profit organization. Dr. Anderson, when referred to as a "founding father" of the group, preferred the term "benevolent uncle."

In 1952 the Society established the Garden's first herb display, which was located inside the stone wall on the east side of the Administration Building. The staff at that time did not encourage volunteers; few visitors saw the display and it did not thrive in the hot shady location.

The Herb Society persevered. In 1961 they published a cookbook, one of the first collections of herb recipes in the country. The following year the herbers began serving luncheon for their meetings in the Museum Building, and the staff members who followed the savory aromas were always welcome to drop in.

In 1964 a long-cherished dream was realized when the herb garden was installed behind Tower Grove House. Designed by Edith Mason as a companion garden, it shared the space with the Garden Club of St. Louis, which sponsored the western half as an old-fashioned perennial garden until 1976, when the entire space was devoted to herbs. More than 50 species used for culinary, medicinal, household, dye, beauty, and decorative purposes are displayed with informative story signs written by the Herb Society. The charming sundial, a gift of Society member Mrs. Herman Husch, came from England and was installed in 1965.

In honor of their silver anniversary in 1966, the Herb Society held their first Fall Harvest Sale on the old parking area where the Lehmann Building stands today. The herb products sold out in two hours, a forerunner of successes to come. The Society also planned their first cooking school and first Herb Plant Sale, which raised funds to purchase a motorized Cushman cart that was in service at the Garden until 1990.

The following year, 1967, the herbers established a test plot at the Garden. The results of their research were published in 1969 as a book, *How to Grow Herbs in the Midwest*, the first comprehensive and authoritative resource for herbers in this region.

1968 saw the debut of the first Herb Course, developed by the members of the Herb Society with the encouragement of Ken Peck, the Garden's director of education. This popular two-day class for adults on the care and uses of herbs has been offered at least once a year ever since, with members of the Herb Society volunteering as teachers. "They always do a terrific job," said Glenn Kopp, coordinator of Adult Education. "And the herbal treats they bring to class get rave reviews!"

Before the early 1970s, few herbs were available for sale commercially. Beginning in 1961, members of the Herb Society learned to propagate and raise herb plants in the Garden's production greenhouses, working closely with the late Paul Kohl, director of horticulture, and the greenhouse staff. For four years, beginning in 1961, the herbs were sold at Famous-Barr Clayton's "Through the Garden Gate" exhibition. Beginning in 1967, the Herb Society held a Plant Sale at the Garden every spring, and people used to line up from the Climatron to the old Floral Display House to purchase herbs in four-inch pots for 50 cents.

Steve Wolff, a member of the Garden's horticulture staff for over 25 years, remembers, "Getting ready for the annual herb sale was a lot of work, and the Society members did most of it. The camaraderie was really fun, and after it was all over, they gave us a wonderful lunch — it was the high point of our year!"

In 1974 the Herb Society published a second cook book and a companion reference book, *Lore and Legend of the Culinary Herbs and Spices*. That same year they held their last public plant sale, selling over 11,000 plants for record profits. Raising annuals for the Garden's increasing displays was beginning to take priority in the limited greenhouse space. With herbs becoming more available from local nurseries, the staff and the Herb Society agreed to move on to other projects.

Several members had formed a boxwood study group in 1969, and in 1976 the group incorporated as the Boxwood Society of the Midwest (see the *Bulletin*, September/October 1995). In 1978, at the Garden's request, the Society appointed member Eileen Craver to make a complete set of dried specimen sheets of some 75 different species from the herb garden for the Garden's herbarium collection. Other members held workshops on decorative crafts using herbs, and in 1980 the Society displayed the wonderful "Pictures from the Garden" exhibit.

In 1989 Herb Society members presented a class in healthful cooking in collaboration with the St. Louis University Medical Center. The group celebrated its golden anniversary at the Garden in 1991, and in 1994 published a handsome third cook book. Early in 1997 the Herb Society published *It's All in the Name*, a remarkably useful and scholarly guide to the common and scientific names of herbs and other useful plants. All publications of the St. Louis Herb Society are available in the Garden Gate Shop.

Steve Wolff said, "The Herb Society is really responsible for popularizing herbs in this part of the country, both for their practical uses and as ornamental plants. They were the first volunteers we had in the Horticulture Division, and they were so knowledgeable! We all learned a lot from each other." That is a pretty good summary of the wonderful relationships the Garden has had with its volunteers over the years, thanks in no small part to the leadership of the St. Louis Herb Society.

For information about membership in the St. Louis Herb Society, please call Barbara Ottolini at 532-4644.

> *"The real importance of an Herb Society is that real understanding of herbs is not to be found in books. You read the books; then you go to the herbarium, to the people who grow the herbs, to the people who process them, the people who use them... thus you learn about herbs."*
>
> *— Edgar Anderson*

PHOTOS BY CLIFF WILLIS

From time to time the "herb ladies" have included a few gentlemen in their ranks, beginning with the late Dr. Edgar Anderson, director of the Garden. Shown getting the Herb Garden ready this spring are (kneeling, from left): Sondra Ellis, Cookie Kruvand, Joyce Niewoehner, Nancy Kirchhoff, Pam Foster, Sue Palmer. Standing, from left: Gene Metter, Barbara Ottolini, Beverly Schmitt, Laverne Jaudes, Toni Ansboro, Dorothy Ernst.

Current officers of the St. Louis Herb Society (clockwise from top left): Barbara Ottolini, president; Sondra Ellis, vice-president; Beverly Schmitt, corresponding secretary; Nancy Kirchhoff, recording secretary. Not pictured: Diane Kohl, treasurer.

Home Gardening

FRAGRANCE GARDENS: THE POWER OF SCENT

The ability of fragrance to trigger vivid mental pictures from the past is a simple but remarkable pleasure. For me, the scent of rugosa roses returns me to childhood in my grandmother's garden, and the scent of plumeria take me to an evening walk in Key West after feasting on seafood. For young and old alike, taking time to smell the roses while gardening can have both short and long term rewards.

Using scent in a garden is an art. Light, subliminal effects are often the most effective. Getting the right balance is necessary, especially indoors where strong a scents can quickly become overpowering.

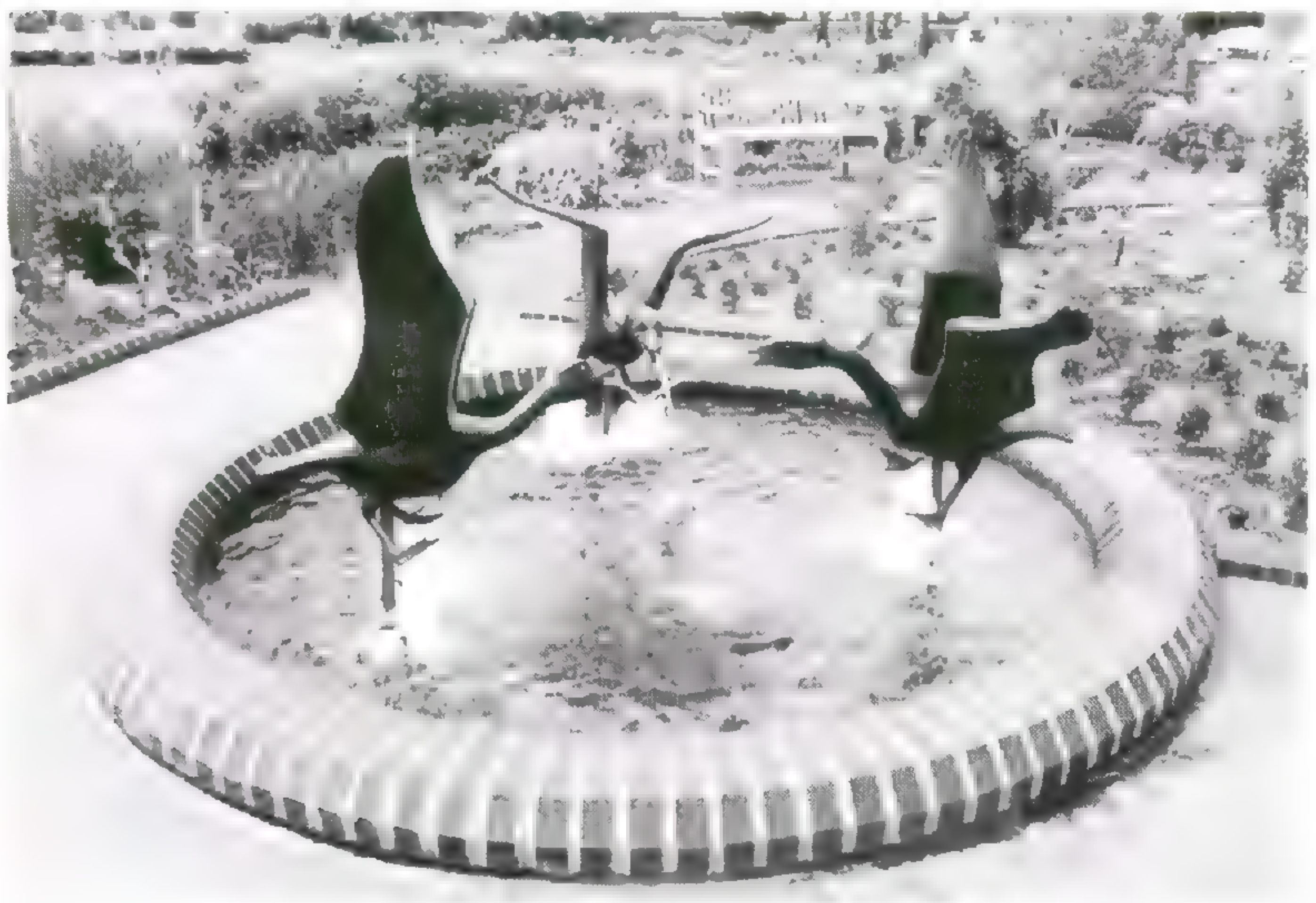
One of my favorite fragrant indoor plants is *Murraya paniculata*. Its flowers are heavily scented and last only a day, opening in the evening and dropping by morning. Part of the plant's charm is its ephemeral nature, and its scent brings back pleasant memories of the tropics. One blossom will scent the whole house, but more can literally make you sick. If two or more flowers open at once, I move the plant outdoors!

Exotic or Oriental Scents

Classifying fragrances in the garden is highly subjective, but the scents of jasmine, mock orange, nicotiana, clerodendron, and tuberose are recognized by almost everyone. Strong and heavy, they remind many people of the tropics. The flowers are often white. They may bloom only at night or become more fragrant at night when their pollinators are flying around. The scents carry long distances; in small doses they can be enchanting, but too much is overpowering. Interestingly, these fragrances contain a chemical called indole, which is also present in animal excrement. This could explain why too much of these scents is unpleasant.

Spicy Scents

These popular scents all have a hint of cloves. Plants include *Viburnum carlesii*, *V. juddii*, stocks, daphnes, and of course pinks and carnations. White and pink flower colors predominate.


CLIFF WILLIS

Robert Walker's "Three Dancing Geese" Fountain in the Fragrance Garden.

Fruit Scents

Fruit scents can be found in the foliage as well as the flowers of many herbs, such as mint. Lemon predominates in evening primroses, southern magnolias, and four o'clocks. Freesias smell of plums. Vanilla and almond fragrances are also in the fruit category.

Floral Scents

Florals are best described as sweet but not cloying. They often are strongly associated with a particular flower, such as roses, lilacs, sweet peas, or lily of the valley. Scented geraniums are well known for having floral-scented as well as fruit-scented leaves.

Foliage Scents

Herbs are the most popular plants with scented foliage, which often is used in cooking. Their fragrance can be lemony, floral, pungent, or "green" and leafy. Many herbs release their scent when the leaves are gently crushed. These plants, such as spicebush, *Lindera benzoin*, can provide fragrant leaves to pass around when friends come to visit your garden.

Unpleasant(?) Scents

Flowers pollinated by flies, such as carrion flower, *Stapelia* sp. and *Amorphophalus* sp., are known for their aroma of rotting meat. A whiff of skunk cabbage, *Lysichiton* sp., also is quite unappealing. And many flowers pollinated by bats, found mostly in the tropics, have a musty smell that many people do not like. These are fun to grow and can make a memorable impression on the uninitiated.

The sense of smell is complex. Not everyone can perceive the same chemicals or react to odors in the same way. Two people can smell the same plant and have markedly different perceptions. It also appears that suggestion can shape your reaction. Stephen Lacey, author of *Scent in Your Garden*, notes that if he asks someone to smell the lovely roast lamb and mint sauce scent of the foliage of *Salvia confertiflora*, they remark, "How delicious." But if he tells them to be prepared for an unpleasant smell, they remark, "How horrible."

Appreciation of some smells seems to be acquired. When first exposed to fresh coriander, or cilantro, many people find its scent unappealing, similar to soap. Yet over time they may grow to love it.

Plant Selection and Care

The Fragrance Garden at the Kemper Center is an excellent starting point for identifying fragrant plants that grow well in St. Louis. Take the list of plants below with you when you visit and note the ones that appeal to you. Labels will give you the plants' basic requirements for sun and moisture. Also check garden catalogs for fragrant plants and visit nurseries.

And remember, just because one cultivar of nicotiana is not fragrant doesn't mean others may not be. In roses, for example, 25 percent of all varieties have little or no fragrance at all, but another 20 percent are very fragrant. Many hybridizers are working to bring more fragrance back to plants, so keep looking, asking, and smelling.

Timing

Plants release their fragrance in different ways and at different times of the day. *Viburnum carlesii*, lindens, autumn clematis, *Clematis terniflora*, and lilacs readily release their perfume to the air where it can travel. These plants can be used to draw a visitor into the garden or along a path in search of the scent. They also can be used next to a door, window, porch, or patio where the scent can be enjoyed often.

Other plants, such as crocus, *Iris reticulata*, buddleija, culinary herbs, and most herbaceous perennials are best planted close to walkways or in raised beds and containers where they can be enjoyed up close. Bringing these flowers indoors also concentrates their fragrance.

Plants that become more fragrant when heated by the sun include herbs, roses, and aretemisias. Walls and other enclosures hold heat and trap the fragrant oils these plants release, intensifying their scent.

Moonvine, nicotiana, and *Murraya paniculata* release their fragrance only at night or become most fragrant at night. Since many of these have white flowers and have scents that travel well, they often stand out in the night garden.

Still other plants are fragrant both day and night, including lily of the valley, tuberoses, heliotropes, honeysuckles, lilacs, and roses. These make good choices for any garden, although the dark colored flowers are lost at night.

Location

Planting creeping thyme between stepping stones enhances pathways, as brushing or crushing the leaves when you walk releases their wonderful scent. I always have lemon grass, *Cymbopogon citratus*, within reach because I love to tear off a piece and smell it as I stroll through my garden.

I also love the scent of fresh patchouli, *Pogostemon cablin*, and grow it in a pot on a very sunny deck where I brush by it regularly. The scent of the plant is enticing and not overpowering as patchouli oil can be. Mint grows in pots just outside my kitchen door for quick access when cooking as well as for its minty scent. Growing mint in pots also controls its invasive habit.

— Glenn Kopp, Instructional Coordinator for Adult Programs

The Fragrance Garden

Boxwood – *Buxus sempervirens* 'Vardar Valley'
Carolina allspice – *Calycanthus floridus*
Fringetree – *Chionanthus virginicus*
Ground clematis – *Clematis recta* 'Purpurea'
Summersweet – *Clethra alnifolia* 'Hummingbird'
Gas plant – *Dictamnus albus* 'Purpureus'
Epimedium × youngianum 'Niveum'
Fothergilla gardenii 'Compacta'
Snowdrop – *Galanthus nivalis*
Summer hyacinth–*Galtonia candicans*
Acidanthera – *Gladiolus callianthus*
Ozark witch hazel – *Hamamelis vernalis*
Daylily – *Hemerocallis citrina*
Fragrant hosta – *Hosta plantaginea* var. *grandiflora*
St. John's wort – *Hypericum* 'Hidcote'
Iris 'Beverly Sills'
Virginia sweetspire – *Itea virginica* 'Henry's Garnet'
Lilies: *Lilium* 'Casa Blanca', 'Malta', 'Miss Rio', 'Thunderbolt'
Regal lily: *Lilium regale*
Fragrant honeysuckle – *Lonicera fragrantissima*
Japanese honeysuckle – *Lonicera japonica* var. *repens* 'Halliana'
Grape hyacinth – *Muscari latifolium*
Double daffodils – *Narcissus* 'Cheerfulness', 'Rose of May'
Small cup daffodil – *Narcissus* 'Erlicheer'
Triandrus daffodil – *Narcissus triandrus* 'Thalia'
Tree peony – *Paeonia suffruticosa*
Russian sage– *Perovskia atriplicifolia*
Mockorange – *Philadelphus* 'Miniature Snowflake'
Tuberose – *Polianthes tuberosa*
Hybrid rugosa roses – *Rosa* 'Blanc Double de Coubert', 'Hansa', 'Linda Campbell', 'Mrs. Anthony Waterer', 'Sir Thomas Lipton', 'Therese Bugnet'
Shrub roses – *Rosa* 'Carefree Wonder', 'Country Dancer', 'Gertrude Jekyll', 'Graham Thomas'
Kordesii roses – *Rosa* 'Champlain', 'William Baffin'
Floribunda rose – *Rosa* 'Gruss an Aachen'
Hybrid perpetual rose – *Rosa* 'Jacques Cartier'
Rugosa rose – *Rosa rugosa* 'Alba'
Korean lilac – *Syringa meyeri*
Manchurian lilac – *Syringa patula* 'Miss Kim'
Lilac – *Syringa vulgaris* 'Sensation'
Yew – *Taxus × media* 'Densiformis'
American arborvitae – *Thuja occidentalis* 'Tiny Tim'
Koreanspice viburnum – *Viburnum carlesii* 'Compactum'
Chaste tree – *Vitex agnus-castus*

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9190
American Orchid Society (Mid-America Regional Judging Committee)	David Brown	727-2385
Belleville Area Rose Society	Dennis Nelson http://users.accessus.net/~rosenut	(618) 233-4609
Bonsai Society of Greater St. Louis	*Bob Harris*	352-0817
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
Federated Garden Clubs of Missouri, Inc.	*June M. Kummer*	821-5075
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Ron Bilchik*	991-5008
Greater St. Louis Iris Society	*Jim Loveland*	349-4977
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*Bob Preis*	677-8805
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Walter Clark*	230-0726
Rose Society of Greater St. Louis	*Robert W. Schneider*	524-3167
St. Louis Evening Herbalists	*Beth Holbrooke*	434-6152
St. Louis Herb Society	*Barb Ottolini*	532-4644
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
St. Louis Hosta Society	*Mirko Bolanovich*	965-7471
St. Louis Water Garden Society	*Bonnie Alford*	962-2663
West County Daylily Club	*Roy Bohrer*	240-8780

Beginning with the July, 1997 issue, this directory will be published twice a year, in the January and July issues of the *Bulletin*. To change your listing, please send a written notice by December 1 or June 1 to: Bulletin Editor, Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, or call (314) 577-5123.

Home Gardening

DESIGNING A FLOWER BORDER

THE Enterprise Rent-A-Car Flower Borders encircle the grassy lawn in the center of the Kemper Center demonstration gardens with a showy combination of perennials. This spectacular display demonstrates two desirable features of flower borders, year-round interest and abundant blooms.

Advance Planning

Flower borders should receive at least six hours of sunlight a day. Avoid planting under trees, which will compete with the plants for nutrients and light.

Locate the bed near a water source or install an irrigation system. Timers, soaker hoses, drip irrigation, or underground irrigation systems will simplify the watering process and provide consistent moisture throughout the growing season.

Evaluate the Site

Soil drainage and the amount of light the border receives determine plant selection. To evaluate drainage, do a water percolation test. Dig a hole 18 to 24 inches deep and 12 inches wide. Fill the hole with water and allow it to drain completely. Fill the hole with water again. If the water drains one inch or more per hour, it is well-drained soil. If the water has not drained after 12 hours, the drainage is considered poor. Organic amendments, drain lines, or raised beds are needed.

Prepare the Site

Proper soil preparation is vital for plants to perform successfully. To determine the needs of your soil precisely, collect core samples for a soil test. Testing can be done through the Kemper Center for Home Gardening for a small fee. Follow the recommendations for the application of amendments and add organic matter during preparation.

When starting a flower border in an existing lawn, remove the turfgrass in strips by thrusting a spade beneath the top three inches of soil. For large areas, a sod stripper can be rented from local garden centers. Or apply a non-selective herbicide, such as glyphosate, on a warm sunny day to kill the existing vegetation. When the grass turns brown and dies in a week or two, till the soil.

It is especially important to till heavy clay soils, like those found in the St. Louis area, as deeply as possible. When planting in an area for the first time, working the soil to a depth of 24 inches is ideal.

A method called double digging is recommended for working soils deeply by hand. Begin by digging a trench 12 inches deep and about 18 inches wide along one edge of the bed. Move the soil with a wheelbarrow to the opposite end of the bed. Loosen the soil in the bottom of the trench to a depth of about 12 inches and incorporate three to four inches of organic matter. Move over 18 inches and repeat the process, placing the soil you dig on top of the soil you previously loosened and ammended. When you reach the opposite end of the bed, fill your last trench with the soil you stockpiled when you started.

Double digging is backbreaking work, but it yields high rewards in heavy soils. If double digging is not feasible for you, work the soil as deeply as possible. Then apply recommended amounts of amendments and approximately two inches of organic matter to the top layer of the garden soil. Incorporate by turning the top six inches of the soil with a shovel or by tilling. If homemade compost or leaf mold is unavailable, contact local garden centers, nurseries or municipalities for nearby sources.

Edging

You can make a border between the flower bed and the lawn with bricks, landscape timbers, black plastic, or steel edging. To create an inexpensive garden-spade edge, stand facing the inside of the flower bed. Plunge a spade into the soil at a 45-degree angle. Each cut should penetrate the soil three to five inches. Remove the soil from each cut and continue around the entire edge of the bed. Replace the displaced soil with mulch.

Plant Selection

Before you buy, be certain that the cultural requirements, such as drainage and light, of the plants you have selected are compatible with your site. Consider the mature size of the plants to reduce the need for future pruning and dividing.

Height

To add depth to the border, select plants that will grow to a variety of heights. Place the shortest plants, approximately six to twelve inches tall, in the front of the border. The mid-border should contain medium-sized plants, 12 to 24 inches in height. The tallest plants form the background of the border. Plants in the three sections should blend together naturally to create an escalating view.

Bloom Times

To achieve a dynamic display of color throughout the growing season, select plants with overlapping bloom times. Try beginning with a burst of colorful spring-flowering bulbs, such as narcissus and tulips. Finish the season with late bloomers such as sedums and asters.

Color

Also consider the length of time plants bloom. The dominant colors of the border may change from week to week depending on which flowers are at their peak. Place long-blooming species near plants with complementary colors. For example, plant one side of the border in cool shades of blue, pink, and white. To attract attention to another area, select flowers in hot tones of yellow, orange, and red.

Low Maintenance

Flower borders can require a lot of weeding, watering, deadheading, and fertilizing. To simplify the work, select low-maintenance perennials such as those described below. To reduce weeds, mulch the flower beds with two to three inches of organic material and avoid over-fertilizing.

Low-maintenance Perennials

1. **Do not need staking under normal conditions.**
2. **Are winter hardy in your area.**
3. **Are not unduly susceptible to insects and diseases.**
4. **Do not need to be divided for at least three years and are not invasive.**
5. **Display attractive foliage during the entire growing season.**

The Enterprise Flower Borders are planted just inside the curved cedar pergola encircling the central lawn at the Kemper Center.

ENTERPRISE RENT-A-CAR FLOWER BORDERS

HERE are 14 low-maintenance plants recommended for flower borders in the St. Louis area. You can see all of these species growing in in the Enterprise Flower Borders.

- *Aster novi-belgii* **'Purple Dome'** Excellent plant for the midborder with a spread of 36 inches, 18 inches tall.
- *Boltonia asteroides* **var.** *latisquama* **'Nana'** Does not require staking. Large purple flowers bloom in late summer. Prefers full sun or partial shade and grows two feet tall.
- *Calamagrostis acutiflora* **'Karl Forester'** Upright feather reed grass grows four to five feet tall. Wispy greenish-pink inflorescence appears in early summer and persists through winter. Tolerates varied soils.
- *Amsonia tabernaemontana* **var.** *salicifolia* Light green linear foliage and steely-blue flower heads bloom in late spring. Foliage turns golden in fall and persists until frost.
- *Coreopsis verticillata* **'Moonbeam'** Thread-like foliage with abundant butter-yellow flowers. Long blooming, self-deadheading, and drought-tolerant.
- *Coreopsis grandiflora* **'Early Sunrise'** Vibrant double yellow flowers, grows 18 to 24 inches tall.
- *Echinaceae purpurea* **'Bright Star'** This cultivar of a Missouri native is drought-tolerant and blooms freely throughout the summer. Attracts bees and butterflies.
- *Epimedium × youngianum* Six to eight inches tall with semi-evergreen foliage that turns reddish in fall. Prefers highly organic soils in partial to full shade. Subtle white or purplish flowers appear in mid-spring.
- *Geranium sanguineum* **'John Elsley'** Drought-tolerant ground cover with brilliant magenta flowers which appear early to mid-summer above delicate bright green leaves.
- *Heliopsis helianthoides* **'Summer Sun'** Tall with yellow daisy-like flowers, blooms mid-summer to fall, prefers moist soils in full sun or partial shade.
- *Panicum virgatum* **'Heavy Metal'** Tall ornamental grass grows three to four feet tall. Stiff bluish leaves turn bright yellow in the fall. Flowers persist through the winter. Tolerates drought, salt, and wind.
- *Perovskia atriplicifolia* **'Filigran'** Attractive soft, grayish dissected leaves and an upright habit. Fragrant lavender flowers bloom in summer. Performs best in full sun.
- *Hylotelephium spectabile* **'Stardust'** Creamy white flower clusters complement fleshy blue-green foliage. Grows 18 inches tall.
- *Veronica longifolia* **'Icicle'** Attractive grayish-green foliage with spikes of white flowers 18 to 24 inches tall, blooms July through September.

— Angela Boeker Eckert,
assistant coordinator,
MBG Adult Education

Controlling Nutgrass

Thanks to a generous donation of Manage® herbicide from Monsanto, the Garden significantly reduced nutsedge — also known as nutgrass or watergrass — in its turf areas last year. "Manage is the only product we have found that is effective against nutgrass infestation, which is such a tough, persistent pest in St. Louis," said Boyce Tankersley, horticulture manager. The staff will begin applications for this season in June — watch for signs on the grounds to see the results. Manage is available from lawn supply companies.

New Summer Classes for Adults

This summer the Kemper Center for Home Gardening is offering an exciting array of new courses for adults. If you took a course at the Garden this spring, you will automatically receive a summer course brochure in the mail in May. If you weren't registered this spring but would like to receive a summer brochure, please call (314) 577-9441.

The Summer Plant House

Saturday "Work & Tell" Demonstrations

11 a.m. to noon • Summer Plant House

Each Saturday from may through August, St. Louis Master Gardeners will conduct free, hands-on demonstrations of practical gardening techniques at the Kemper Center. Registration is not required.

MAY	**Container Gardening**
JUNE	**Growing Herbs**
JULY	**"Kids in Bloom"**
AUGUST	**Cutting and Drying Flowers**

Calendar

May 1 — June 10

Witness: Endangered Species of North America

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9 a.m. to 5 p.m. daily, Monsanto Hall. Large format photographs by Susan Middleton and David Liittschwager celebrate the beauty and diversity of plants and animals on the verge of extinction. These electrifying images have the power to inspire a lasting appreciation for these beings and for the necessity of preserving their threatened habitats. See the Calendar listings for related lectures and events. Co-sponsored by Monsanto Fund and the Missouri Department of Conservation. Free with Garden admission.

May 18 Sunday

Center for Plant Conservation Day

Celebrate and learn about the work of the Center for Plant Conservation, which has its national headquarters at the Garden.

1:30 p.m. — Guided tour of rare plants from the CPC National Collection growing on Garden grounds. Meet at Ticket Counter.

4 p.m. — Shoenberg Auditorium. "Rare and Beautiful: Aesthetic Value and Imperiled Plants of the United States," a slide lecture by Dr. Brien A. Meilleur, president and executive director of CPC.

4:30 p.m. — Shoenberg Auditorium. "Endangered Plants of the Midwest: The Role of the Missouri Botanical Garden," a slide lecture by Dr. Alan W. Lievens, MBG horticultural taxonomist.

5 p.m. — Guided tour of rare plants from the CPC National Collection growing on Garden grounds, led by Dr. Alan Lievens.

Concert by Tingstad & Rumbel

6 p.m. — Cohen Amphitheater. Tingstad & Rumbel are nationally known instrumental artists celebrated for their commitment to preserving natural and often endangered treasures. Bring blankets or lawn chairs for seating if desired. Cash bar. Admission will benefit the Center for Plant Conservation: $10 for adults, $8 for Garden members. Tickets will be available at the door, or call (314) 577-9456.

May 23 Friday *Rose Evening*

5:30 to 8:30 p.m., Ridgway Center and grounds. Enjoy a beautiful summer evening among the roses, discuss rose care with Garden staff, receive a long stemmed rose, and much more! Entertainment, attendance drawing, cash bar. An optional buffet supper is available by advance reservation only, $20 per person. Dinner reservations must be made by May 19, 1997. Rose Evening will not be cancelled in case of rain. Free, for members only. See the invitation mailed recently to all members.

May 2, 9, 16 Fridays

"Witness" Wildflower Walks

9 a.m. to noon, Shaw Arboretum. Call (314) 451-3512 for more information.

May 3 & 4
Saturday & Sunday

Garden Expo: Grand Opening of Kemper Center Gardens

See page 3 for details.

May 9 Friday

Witness Lecture: "Rescuing Traditional Food Crops"

7 p.m., Shoenberg Auditorium. Lecture by Kent Whealy, director of Seed Savers Exchange, a non-profit network of gardeners who collect and distribute endangered varieties of fruits and vegetables. Admission: $4 adults, $3 seniors age 65 and over, $2 Garden members.

May 10 Saturday

Garden Expo: Container Gardening

See page 3 for details.

May 12 Saturday

Spring Wildflower Sale

10 a.m. to 4 p.m., Shaw Arboretum. See page 4 for details.

May 10 Saturday

Witness Class: "Seed Saving Techniques for Vegetable Gardeners"

10 a.m., Shoenberg Auditorium. With Kent Whealy, director of Seed Savers Exchange. Admission: $13 for adults, $10 for Garden members. Booksigning to follow.

May 14 Wednesday

Witness Lecture: "Sustaining Endangered

continued on page 13

Members' Days

May 20 Tuesday

Herb Day

1 p.m., Shoenberg Auditorium. Melanie Fathman, past president of the St. Louis Herb Society, presents "Herban Renewal," a slide lecture on the history of herbs and useful plants. After the lecture, join members of the St. Louis Herb Society for tours of the herb garden at Tower Grove House. Attendance drawing. Seating is on a first-come, first-served basis. Free, for members only.

June 20 Friday

Members' Musical Evening

5:30 to 9 p.m., Spoehrer Plaza. Concert begins at 7:30 p.m. The Big Band Era comes alive! Join the Gateway City Big Band for an outdoor concert. Bring a picnic supper, blankets, or lawn chairs if desired. Limited concert seating is provided on a first-come, first-served basis. Free, for members only. Cash bar.

June 24 Tuesday

Lecture: "English and French Precedents for the Design of Tower Grove Park"

7 p.m., Shoenberg Auditorium. John Karel, director of Tower Grove Park, gives a slide presentation of his research in England and France over a three-year period. Seating is on a first-come, first-served basis. Free, for members only.

continued on page 12

Species in Missouri: What Is 'Natural'?"

7 p.m., Shoenberg Auditorium. Doug Ladd of The Nature Conservancy looks at the diverse habitats of Missouri and the role of human society in the "natural" environment. Admission: $1 for adults, free to Garden members.

May 17 & 18
Saturday & Sunday

Garden Expo: Chinese Festival, Herb Gardening

See page 3 for details.

May 24 & 25
Saturday & Sunday

Garden Expo: Fragrance Gardening

See page 3 for details.

May 26 Monday

Summer Hours Begin

Garden is open 9 a.m. to 8 .m. daily through Labor Day.

May 28 Wednesday

Witness Lecture: "Racing for New Medicines"

7 p.m., Shoenberg Auditorium. Dr. James S. Miller, MBG associate curator and head of the Department of Applied Research, discusses the work of Garden botanists who currently provide thousands of plant samples each year for pharmaceutical research. Admission: $1 for adults, free to Garden members.

May 31 & June 1
Saturday & Sunday

Bonsai Show and Sale

9 a.m. to 8 p.m. daily, Orthwein Floral Display Hall. Presented by The Greater St. Louis Bonsai Society. Free with Garden admission.

June 4 Wednesday

Whitaker Jazz Festival

6 p.m., Central Visual and Performing Arts High School Jazz Band plays on Spoehrer Plaza. Jazz concert by Sessions Jazz Band begins 7:30 p.m., Cohen Amphitheater. See back cover.

June 5 Thursday

Trip Preview: "Kenya: A Safari Adventure"

7:30 p.m., Ridgway Center. MBG Education staff give a slide presentation of the upcoming tour to Africa. Free admission.

June 7 Saturday

Iris Society Show

Noon to 8 p.m., Orthwein Floral Display Hall. Presented by the Greater St. Louis Iris Society. Free with Garden admission.

June 7 Saturday

"Witness:" Field Trip to Victoria Glade

Call The Nature Conservancy at (314) 968-1105 for information and reservations. Limited to 50 participants.

June 11 Wednesday

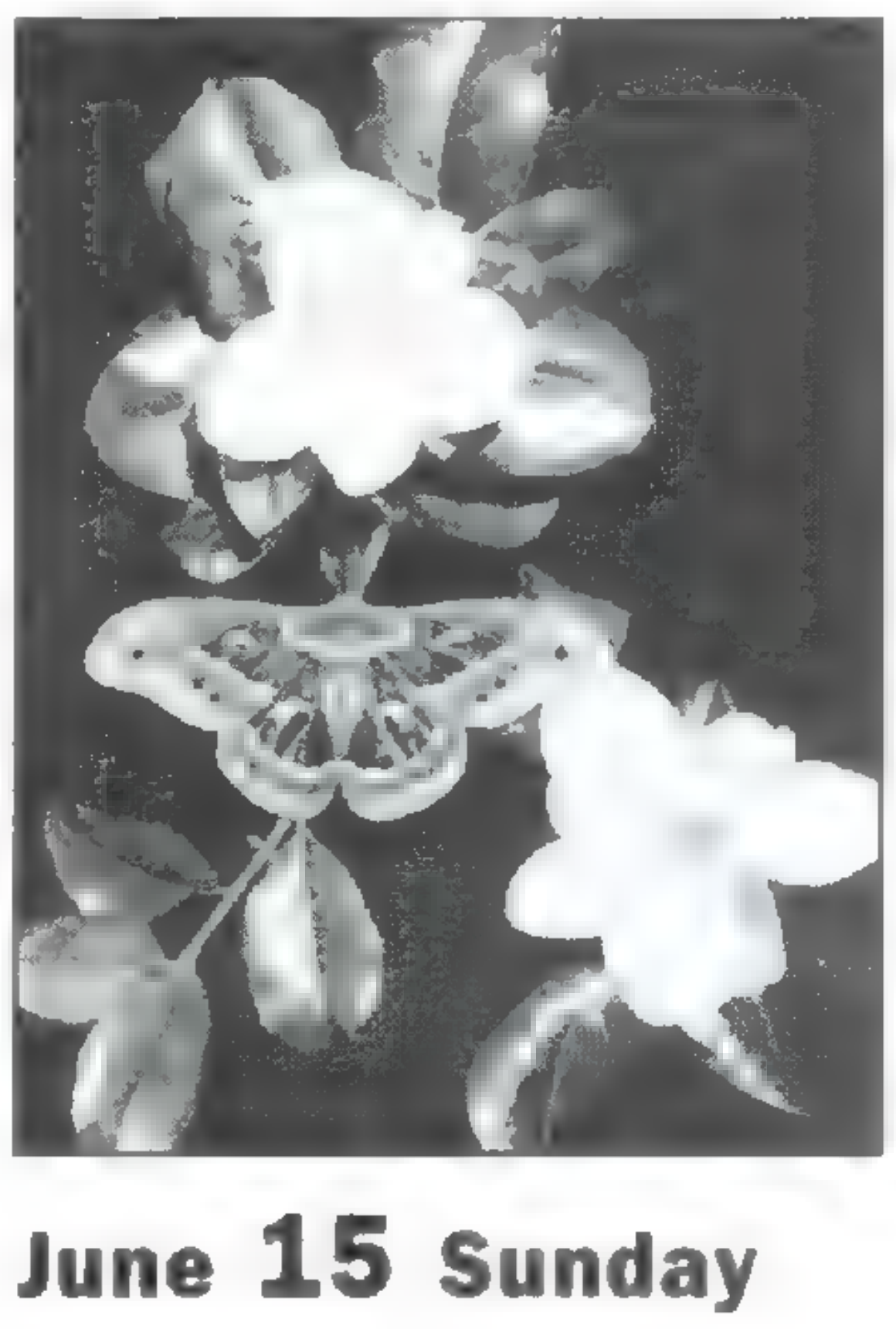
Whitaker Jazz Festival

6 p.m., Normandy High School Band plays on Spoehrer Plaza. Jazz concert by Jeremy Davenport begins 7:30 p.m., Cohen Amphitheater. See back cover.

June 14 & 15
Saturday & Sunday

Lily Society Show

Noon to 8 p.m. Saturday, 9 a.m. to 8 p.m. Sunday, Orthwein Floral Display Hall. Presented by the Mid-America Regional Lily Society. Free with Garden admission.



June 15 Sunday

Exhibit: "John Cody: Audubon of Moths"

9 a.m. to 5 p.m. daily, through August 15. Magnificent watercolors by John Cody, M.D. of saturniid moths, a primarily tropical family that includes some of the world's most richly textured and beautiful insects. Free with Garden admission.

June 18 Wednesday

Whitaker JazzFestival

7:30 p.m., Cohen Amphitheater. Featuring Marchel Ivery with the Juneteenth Celebration. See back cover for details.

June 25 Wednesday

Whitaker Jazz Festival

7:30 p.m., Cohen Amphitheater. Featuring Quartet Tres Bien. See back cover for details.

June 29 Sunday

West County Daylily Society Show and Sale

Sale: 9 a.m. until sold out, Monsanto Hall. Show: Noon to 8 p.m., Orthwein Floral Display Hall. Free with Garden admission.

July 2 Wednesday

Whitaker Jazz Festival

6 p.m., Young Jazz Messengers plays on Spoehrer Plaza. Jazz concert with Denise Thimes begins 7:30 p.m., Cohen Amphitheater. See back cover for details.

Members

Shown at the luncheon are (back row, from left): Pat Becklean, Ann Spradling, Gene Spradling, Paul McClinton, 1997 co-chair. Front row, from left: Sarah Craig, MBG staff; Norma Hill, 1996 co-chair; Jean Crowder; Frank Becklean.

Membership Services Desk Volunteers

The Garden's Goodwill Ambassadors

Each year the volunteers of the Membership Services Desk greet thousands of visitors, answer their questions, and help people who want to purchase a Garden membership. They are our goodwill ambassadors; their friendly interest provides the personal attention that makes everyone feel welcome at the Garden.

"Our volunteers are truly dedicated," said Jean Crowder, chair. "They put in a lot of extra time on evenings, weekends, and during special events. And they work hard to stay up to date as a source of information for visitors."

In March, the volunteers were honored at a luncheon at Spink Pavilion for their work on the Membership Services Desk. Pat and Frank Becklean were recognized for giving the most hours of service during 1996. Gene and Ann Spradling gave the second largest number of hours, followed by Paul McClinton.

During 1996, the Membership Services Desk volunteers sold 6,294 memberships. The Garden is very grateful for their extraordinary dedication and support.

PHOTO BY CLIFF WILLIS

Volunteers at the Membership Services Desk in the Ridgway Center lobby offer information and a warm greeting to all Garden visitors.

Don't Forget —

May 9 Friday

Mother's Day Luncheon

Bring your mother and your special friends to the Garden for our annual Mother's Day Luncheon under the outdoor tent, featuring a showing of spring fashions by Dillards. $40 members, $50 non-members. Call (314) 577-9500 for reservations.

May 10 Saturday

"Decorate a Potted Plant for Mom!"

10 a.m. to 2 p.m., in the outdoor tent at Ridgway Center. Create your own decorated container and pot a special plant to take home for Mom. For children ages 4 to 12, $3 per potted plant. Sponsored by the Members' Board.

Free Benefits for Members

When you plan your next vacation, call the Membership Office at (314) 577-5118 to request a list of arboreta, botanical gardens, and conservatories that offer free reciprocal admission and additional benefits to members of the Missouri Botanical Garden. Published annually by the American Horticultural Society, the list includes dozens of beautiful places throughout the United States and Canada. Don't forget to take advantage of this free benefit of Garden membership. The list may also be obtained at the Membership Services Desk in the lobby of the Ridgway Center.

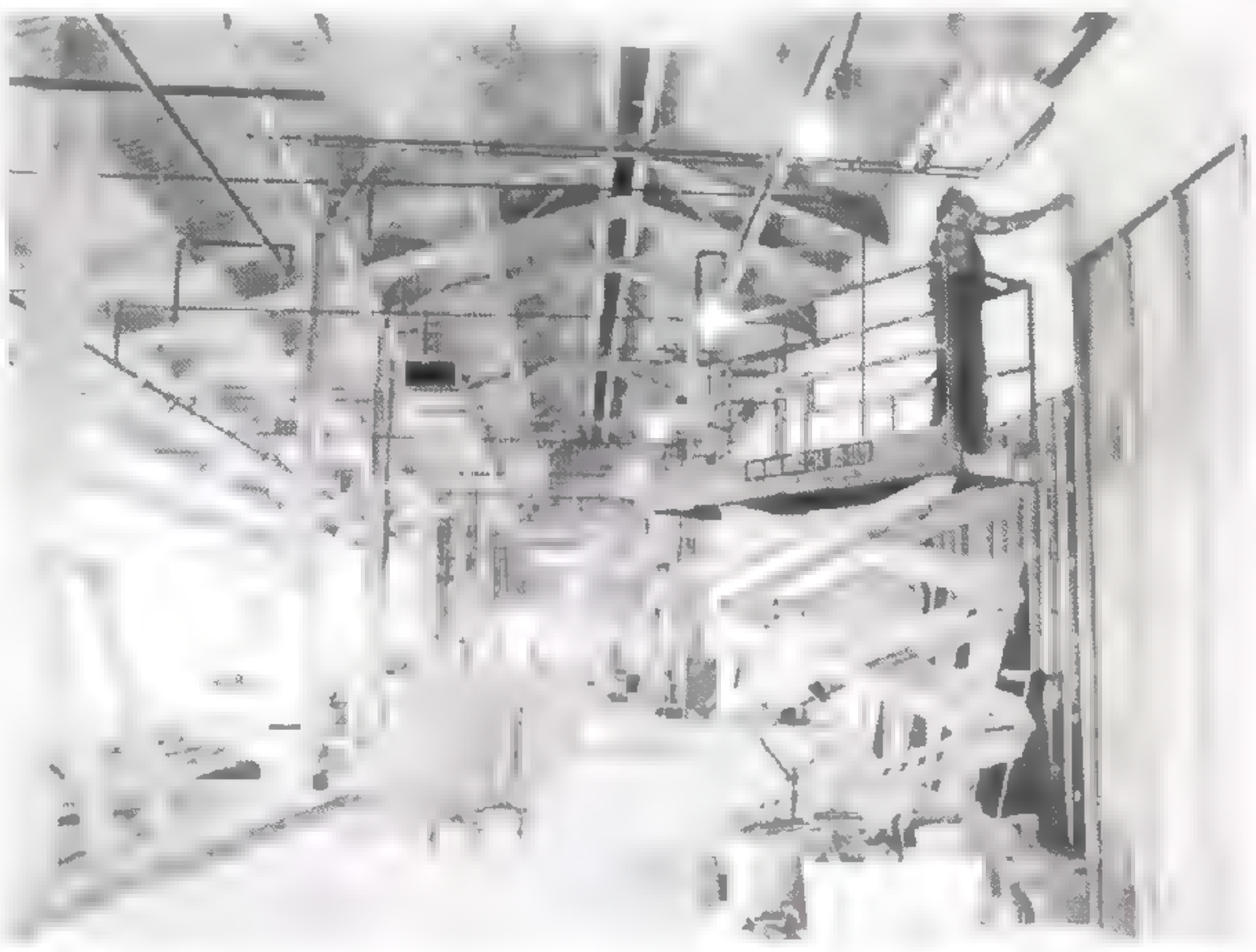
Wanted: New Garden Guides

If you are interested in joining the Garden Guides, training for a new group of volunteers will begin in September. Please watch for more information in the July/August Bulletin, or call Jeanne McGilligan at (314) 577-5187.

Save The Date! Saturday, September 20

Sneak Preview Benefit

Be among the first to get a look inside the Garden's new Research Center! Watch for details.



Behind the Scenes

Jonathan Kleinbard Is Named Deputy Director

PHOTO BY CLIFF WILLIS

JONATHAN KLEINBARD, a nationally recognized communications and community relations specialist, began his duties as deputy director of the Garden in April.

Peter H. Raven said, "Kleinbard has a wealth of experience and achievements in areas that are extremely important to the future of the Garden. He joins our senior management team at a pivotal moment for our plans to expand services to St. Louis and the bi-state region and to strengthen our research and education programs."

Kleinbard comes to St. Louis with a distinguished career in journalism, foundation work, and higher education. Since 1975, he has served as a vice-president at the University of Chicago. During his years there, Kleinbard conceived and implemented policies that helped to strengthen the neighborhood surrounding the university, including housing, development, and community revitalization programs. He established relationships of trust and cooperation with local government agencies, citizens' organizations, and schools.

In addition, Kleinbard directed the university's internal communications, security, non-academic publications, and relations with the public and news media. Kleinbard also managed the University's extensive off-campus real estate holdings. His office was responsible for coordinating major lectures, cultural events, dinners, receptions, ceremonies, and special events.

An honors graduate of Kenyon College, Kleinbard worked for several years as a reporter and editor for United Press International in Philadelphia and London. He joined the Public Affairs department of the University of Chicago in 1965, with staff responsibilities for broadcasting, publications, and a faculty public affairs program. In 1969 he left for a senior position with The Children's Foundation in Washington, D.C. and returned to University of Chicago in 1971 as assistant to the president, a position he held with three different chief executives at Chicago.

"Dr. Raven has made the Garden a world class institution and a major asset for St. Louis," Kleinbard said. "The opportunity to work with him and with the staff is a very exciting challenge. I believe in building cooperative partnerships that benefit both the institution and its community, and I look forward to working with the Garden and the people of St. Louis."

Kleinbard and his wife, Joan, plan to live in the City of St. Louis near the Garden. They both enjoy gardening.

GARDEN GATE SHOP

All proceeds from sales in the Garden Gate Shop support the Missouri Botanical Garden.

Please Pardon the Mess!
The Shop is a little bit topsy-turvy right now as we prepare for some major renovations. If you can't find your favorite items, just ask one of the staff. We appreciate your patience as we get ready to show off our great new design later this summer!

Bridal Showers

The Shop is a great place to register for wedding and shower gifts, including everything from patio furniture to dishes to garden tools. And for the bride and groom planning their first home, what could be more fun than a coed shower with a gardening theme? To register, call 577-5137 or 577-0211, or visit the Shop for assistance.

Summer Hours in the Shop

From Memorial Day through Labor Day, the Shop will be open 9 a.m. to 6:30 p.m. daily, and until 7 p.m. Friday and Saturday. Stop in when you visit the Garden for a quiet summer evening stroll!

May 11

Mother's Day

The Shop has just the right gift, from blooming baskets to silk and dried flower arrangements, jewelry, stationery, garden accessories, and more. To order a custom gift basket, call 577-5137.

May 20 Members' Day

Herb Day

Members receive an additional five percent discount on potted herbs, herb books, herb pots and gardening accessories, or any gift with an herb design.

Rose Evening and Whitaker Jazz Festival

The Shop will be open for these special summer evening events. Rose Evening, May 23, the Shop will be open until 8:30 p.m. Wednesday evenings during the Whitaker Jazz Festival, the Shop will remain open until the concert begins. See back cover for dates and times of jazz evenings.

June 15

Father's Day

Great gardening tools, leather goods, hammocks, books, desk accessories, and more! Call 577-5137 for a customized gift basket.

June 20 Members' Day

Big Band Concert

Members receive an additional five percent discount on wind chimes, bells, marimbas, tapes, and compact disks.

NEW! MBG Compost

The Garden has teamed up with St. Louis Composting, Inc., to produce an excellent bagged organic compost that can be used as a soil conditioner, mulch, or in containers. Staff at the Kemper Center for Home Gardening evaluate quality standards for the new compost, which is used in the Kemper Center gardens. Proceeds from sales of the compost benefit the Garden and support the recycling of yard waste in the St. Louis area. One cubic-foot bags, $3.50.

Missouri Botanical Garden
COMPOST
DIRECTIONS FOR USE

David Austin ROSES

Blending Old & New

Recently there has been great interest among gardeners in something called the David Austin roses, also known as English roses. Austin roses have beautiful soft colors and wonderful fragrances that mix well in our gardens. How are they different from other modern roses? Will they grow in St. Louis?

Sometime in the last half of the nineteenth century rose breeders started to combine hybrid perpetuals and tea roses. Once breeders realized the potential in this combination, other roses fell by the wayside.

The new roses had many fine characteristics, including recurrent bloom, thick petals, hardiness, vigor, vibrant color, and large blooms. Over the past hundred years rose breeders have manipulated these characteristics to produce the lovely class of roses know as hybrid teas. Unfortunately, in striving for perfect color, shape, and size, many endearing characteristics of the old roses were lost.

When we think of old roses, the first thing that comes to mind is their exquisite fragrance, but old roses have other wonderful attributes as well. The shapes of the flowers vary from deep cups to flat rosettes. Some species have only five petals, but most old roses have many, many petals, adding a depth and richness to their colors that we do not see in the modern roses. The colors change as the blooms mature and age, giving an added dimension to the plants.

The wonderful old roses may have been lost or overlooked for a time, but they were not forgotten. Sometime in the 1950s, David Austin, an English farmer, decided that it was time to bring the fragrance, grace, and shapes of the old-fashioned roses back to modern gardens. Austin worked with species roses, such as the gallicas, combining them with the modern floribundas and some hybrid teas. Over the years he has crossed and recrossed between the old and new, producing roses of varied shapes, sizes, flower forms, and colors.

Austin calls his hybrids English roses. Most are repeat bloomers when given proper care, and all have characteristics of the old roses.

When considering English roses for a place in our gardens, we must give thought to the mixed heritage of these beautiful plants. On the one hand, old roses need little care. They bloom and grow for many years without much attention, a fact evident from the abandoned gardens where many of these roses have been found. On the other hand, all recurrent blooming roses need to be fertilized and watered regularly to reach their full potential.

The English roses benefit from a program that includes organic fertilizers. Fertilizing after the first flush of bloom will encourage a good repeat bloom. Keeping the plants moist by watering during dry spells and applying a good mulch to conserve moisture is essential. If English roses are in good health, they are quite resistant to the usual diseases of roses, and spraying should not be the problem it is with modern roses.

In fact, their vigor may be the biggest drawback to David Austin roses. Many growers have found that the plants grow much larger than they expected.

Austin recommends annual pruning to encourage a good repeat bloom, as with any repeat-blooming rose. He prefers to prune in late fall or winter, cutting the plants back to two-thirds or one-half of their length after removing all weak, aging, or dead canes.

The theory behind early pruning is that roses start to grow very early. The plant is forced to make a second start if pruning is done after the buds break. By forcing the plant to make a second start we delay the bloom. Although Austin prefers winter or fall pruning, he does not discourage spring pruning.

A small collection of Austin roses can be found in the shrub border of the Lehmann Rose Garden. 'Heritage', 'Emanuel,' 'Gertrude Jekyll,' 'Abraham Darby,' 'Othello' and 'Lillian Austin' are a few of the varieties that do well in St. Louis.

The fact that 'Heritage,' 'Othello', and 'Gertrude Jekyll' have survived the past few years is a testimony to their toughness. The shrub borders had a pH of 8.1, which is very bad for roses, but these plants survived and bloomed. The pH problem is being corrected, and we are looking forward to more typical growth from these plants in the coming year.

— Diane Brueckman, MBG rosarian

Profile – The MBG Rosarian

Diane Brueckman

With six grown children and eight grandchildren, Diane Brueckman decided to go back to school for an associate's degree in horticulture, which she earned at St. Louis Community College at Meramec last May. An enthusiastic home gardener all her life, Diane had been volunteering in horticulture at the Garden off and on for 15 years. Last September she was hired as the Garden's rosarian, with responsibility for maintaining the Garden's award-winning rose displays.

CLIFF WILLIS

Diane emphasizes techniques with low environmental impact in the rose gardens as much as possible, including organic fertilizers, minimal spraying, and preventive maintenance to keep plants healthy.

Somehow, Diane still finds time to care for her own roses at home, too. Come enjoy the beautiful results of her work on Rose Evening, May 23.

Roses Win AARS Award

The Garden's Gladney and Lehmann Rose Gardens have been honored with a 1996 All-America Rose Selections Award for Outstanding Maintenance. The honor is bestowed annually to gardens surpassing AARS's high standards for rose care and presentation. It is the first time since 1993 that the Garden's displays have earned the AARS award.

AARS public gardens contain a minimum of 800 rose bushes and offer special displays of outstanding new varieties chosen by the AARS for their beauty, novelty, and vigor. Starting each June, the gardens offer an exclusive preview of the coming year's outstanding new rose varieties. There are 136 AARS public gardens in the United States. AARS is a non-profit organization whose members represent more than 90 percent of the nation's total rose production.

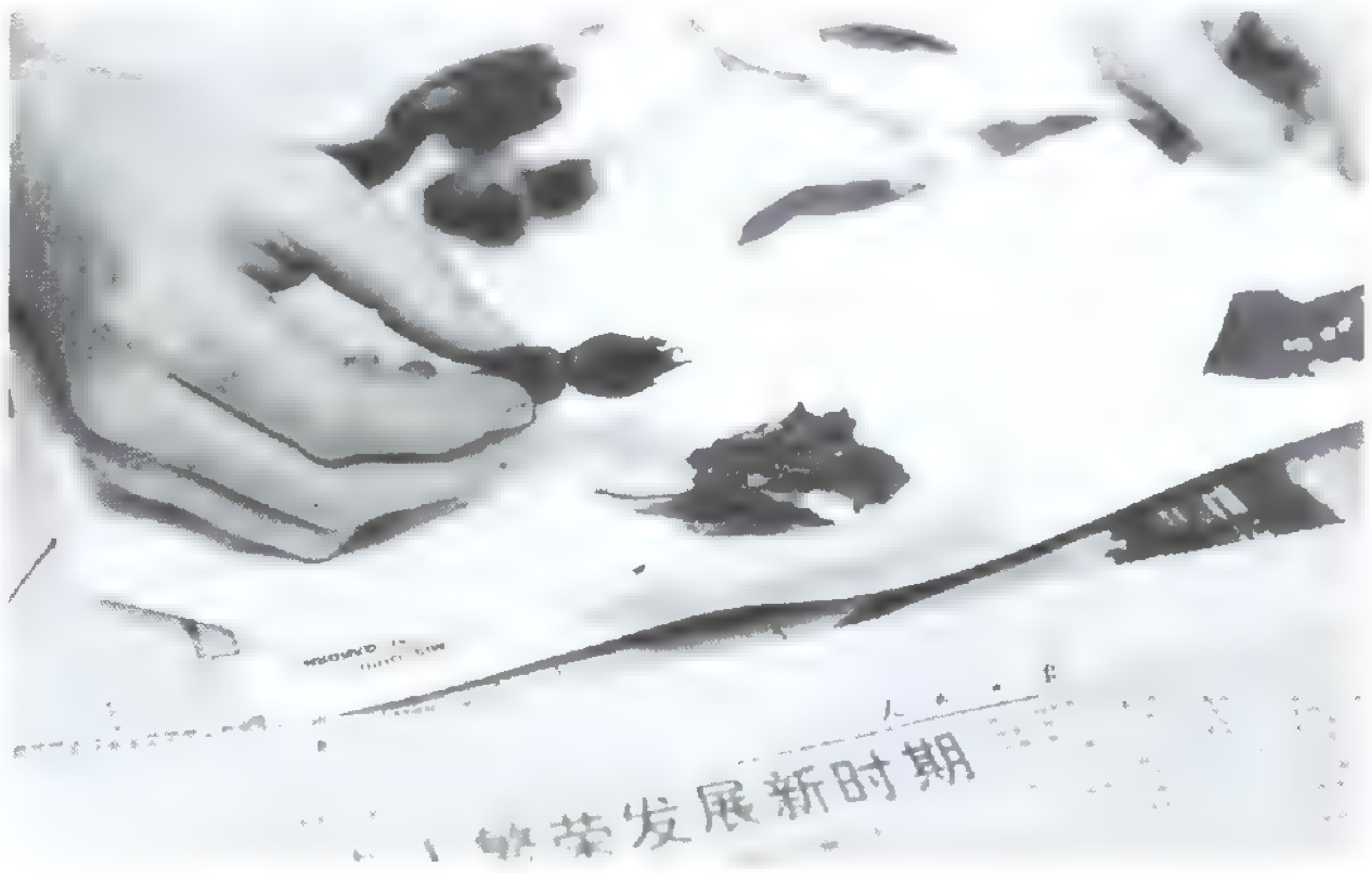
Treasures from China

LAST YEAR the Garden received over 41,000 dried plant specimens from China, bringing our total collection of Chinese specimens to over 160,000. This is part of an ongoing project that eventually will add nearly half a million Chinese specimens to the herbarium and make the Garden a major resource for studying these plants outside China. Worldwide only a few herbaria, including those in China, will have larger collections of Chinese plants.

This is the first time since the 1930s that significant numbers of Chinese specimens have been made available to Western scientists. With more than 30,000 species, China has almost twice as many plants as the United States, Canada, and Greenland combined. Many Chinese species are of great pharmaceutical or horticultural importance.

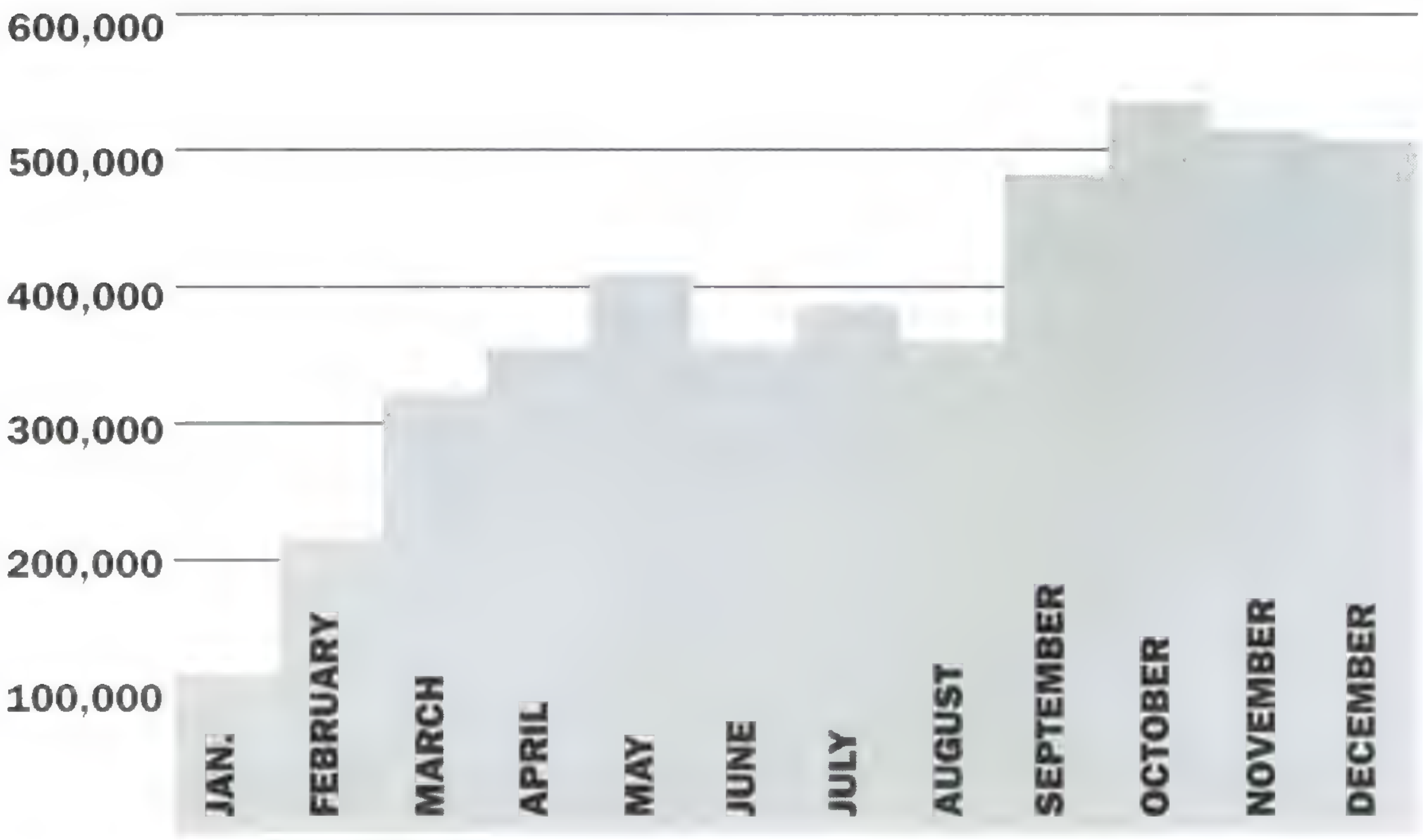
The Flora of China project brings together hundreds of botanists from all over the world, combining their expertise to produce the first modern, English-language account of all the plants in China. The Garden serves as the U.S. headquarters for the project.

PHOTOS BY CLIFF WILLIS



Above: The distinguished Russian botanist Alexei Skvortsov of the Main Botanical Garden in Moscow (right) visited the Garden in March to work in the herbarium and consult with colleagues on the Flora of China project. Prof. Skvortsov is a leading authority on Asian plants and is writing treatments on birches, willows, and cottonwoods for the Flora of China. He met with MBG botanists Dr. Guanghua Zhu (left) and Dr. Ihsan Al-Shehbaz (center), who directs the Flora of China project at the Garden. Left: Examining Chinese plant specimens in the Garden's herbarium. With the acquisition of these specimens, the Garden is becoming a world resource for the study of Chinese plants.

"Hits" on the Garden's Website in 1996 —



Visit the Garden Website at http://www.mobot.org/

WebWatch

The Garden's Website continues to grow in popularity at a phenomenal rate. The graph at left illustrates the number of "hits," or files opened by users, during 1996. Increasing from about 100,000 hits per month in January 1996, use now averages over half a million hits every month.

The Garden Website provides access to a wide variety of information about the Garden, a current calendar of events, plants in bloom, educational opportunities, and research activities.

The Research Division pages currently contain well over 2.2 million items of information, including access to the botanical database w3TROPICOS, the library catalog, and thousands of images of plants.

MBG Natural History Adventures

Kenya: A Safari Adventure

October 19 - 31, 1997

Co-sponsored by the St. Louis Audubon Society

This fall take a very special safari, from the dry scrub lands of Samburu Game Reserve, to the forests of the mountain highlands, from the shores of Lake Nakuru dotted with flamingos, to the savannah of the Masai Mara with panoramic views and vast herds of game. Visit the breathtaking landscapes of Kenya, home to some of Africa's richest wildlife reserves. The tour will include a special night drives to look for seldom seen nocturnal wildlife, nature walks, and overnights in three exclusive tent camps. The trip includes visits to Nairobi, the Great Rift Valley, and the Serengeti Plain with its vast herds of zebras and wildebeests, prides of lions, and families of elephants.

PHOTOS BY BARBARA ADDELSON

Trip Preview June 5

For more information and a detailed itinerary, please call the Education Division at (314) 577-9506. Join us for a trip preview at the Ridgway Center on Thursday, June 5, at 7:30 p.m.

1997 Missouri Botanical Garden Travel

Natural History Adventures

The Nature Place: Colorado Rockies
July 5 – 11 • $ 825/Adults, $ 550/Children

Galapagos: Darwin's Enchanted Isles
August 6 – 16 • $3,398 from Miami

Kenya: A Grand Safari
October 19 – 31 • $4,385 from St. Louis

Call (314) 577-9506 for more information.

Teaming with Wildlife

PHOTO BY GEORGE YATSKIEVYCH

The initiative would help protect endangered species and their habitats, such as this Western prairie fringed orchid,* Platanthera praeclara, *from Harrison County, Missouri.

THE International Association of Fish and Wildlife Agencies, which includes representatives of state conservation agencies from throughout the United States, is developing a plan to provide urgently needed funding for conservation of "non-game" wildlife. Known as "Teaming With Wildlife", the initiative is being prepared as a bill to be introduced in the U.S. Congress. The plan is modeled after similar laws that have supported hunting and fishing programs in the individual states for many years.

"Teaming with Wildlife" would establish a small excise tax to be collected from manufacturers of outdoor recreation equipment. The funds would be distributed by the federal government to the states and earmarked specifically for conservation, education, and recreational projects, such as "watchable wildlife" programs and hiking trails. Even a small surcharge would raise an estimated $7 million or more annually for the state of Missouri.

In many states, there is insufficient funding to survey, monitor, and preserve regional plants, animals, and their natural habitats. "Teaming With Wildlife" would support and expand these kinds of programs. In states like Missouri, which are blessed with relatively well-funded conservation departments, the funds could help support other organizations with conservation and educational programs.

For more information, please write to "Teaming With Wildlife", Natural History Division, Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102.

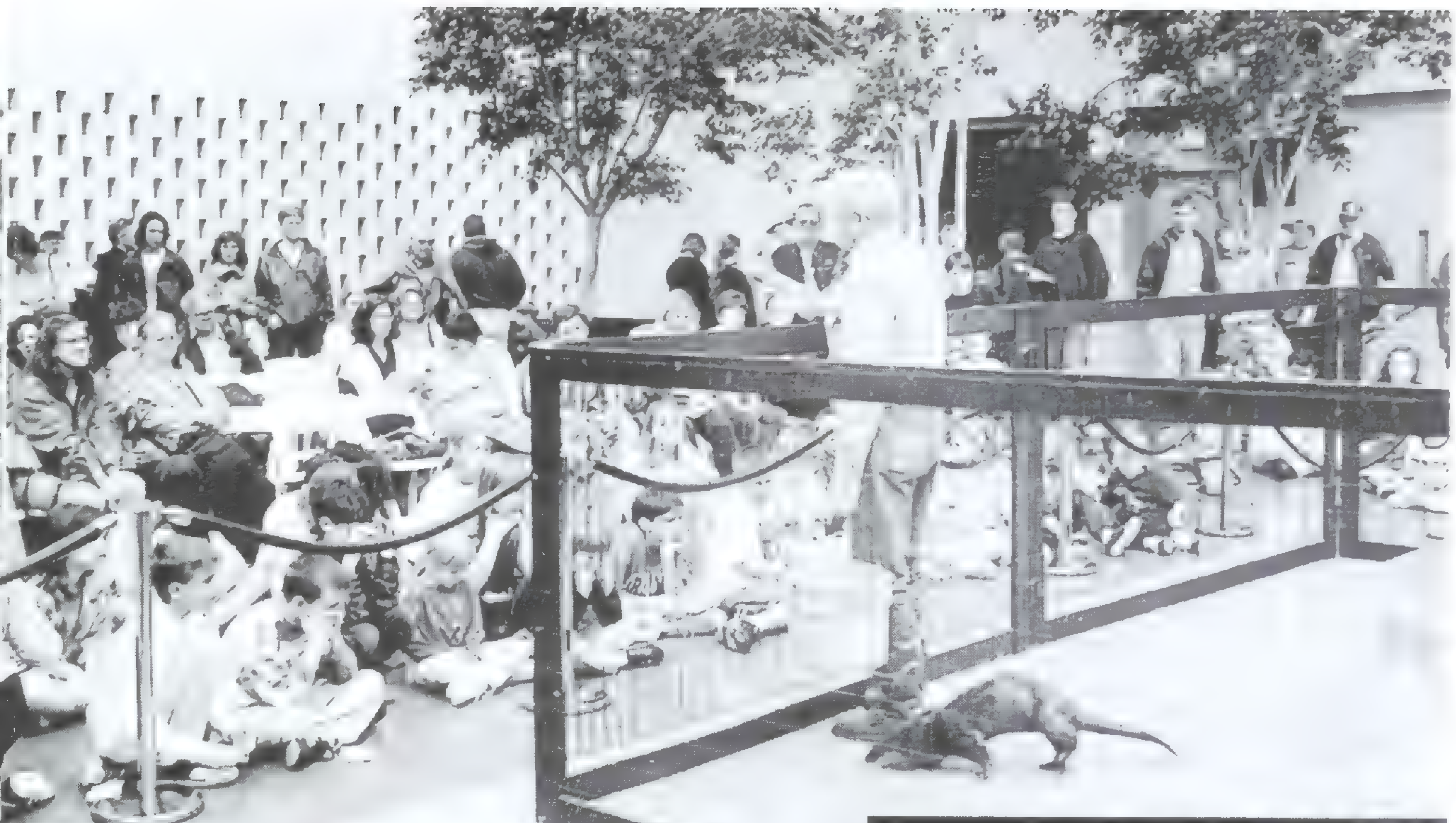
— George Yatskievych, Ph.D.
Dr. Yatskievych is a botanist with the Missouri Department of Conservation and curator of Missouri Plants at the Garden.

Midwestern Rare Plant Conference Held at Garden

In February the Garden hosted a conference attended by delegates from all over the Midwest, organized in collaboration with the Center for Plant Conservation and the Missouri Department of Conservation. Participants presented their research on rare Midwestern plants, set regional conservation priorities, and developed collaborative plant conservation projects for the Midwest. The final day of the meeting was devoted to a Rare Plant Task Force meeting organized by the Center for Plant Conservation.

Sponsors of the conference included the Chicago Botanic Garden, the George Gund Foundation, the Holden Arboretum, the Morton Arboretum, the Nebraska Statewide Arboretum, and the U.S. Fish and Wildlife Service, Region 3.

PHOTOS BY CLIFF WILLIS



Above: Everyone enjoyed viewing the "Witness" exhibit photographs of endangered plants and animals.

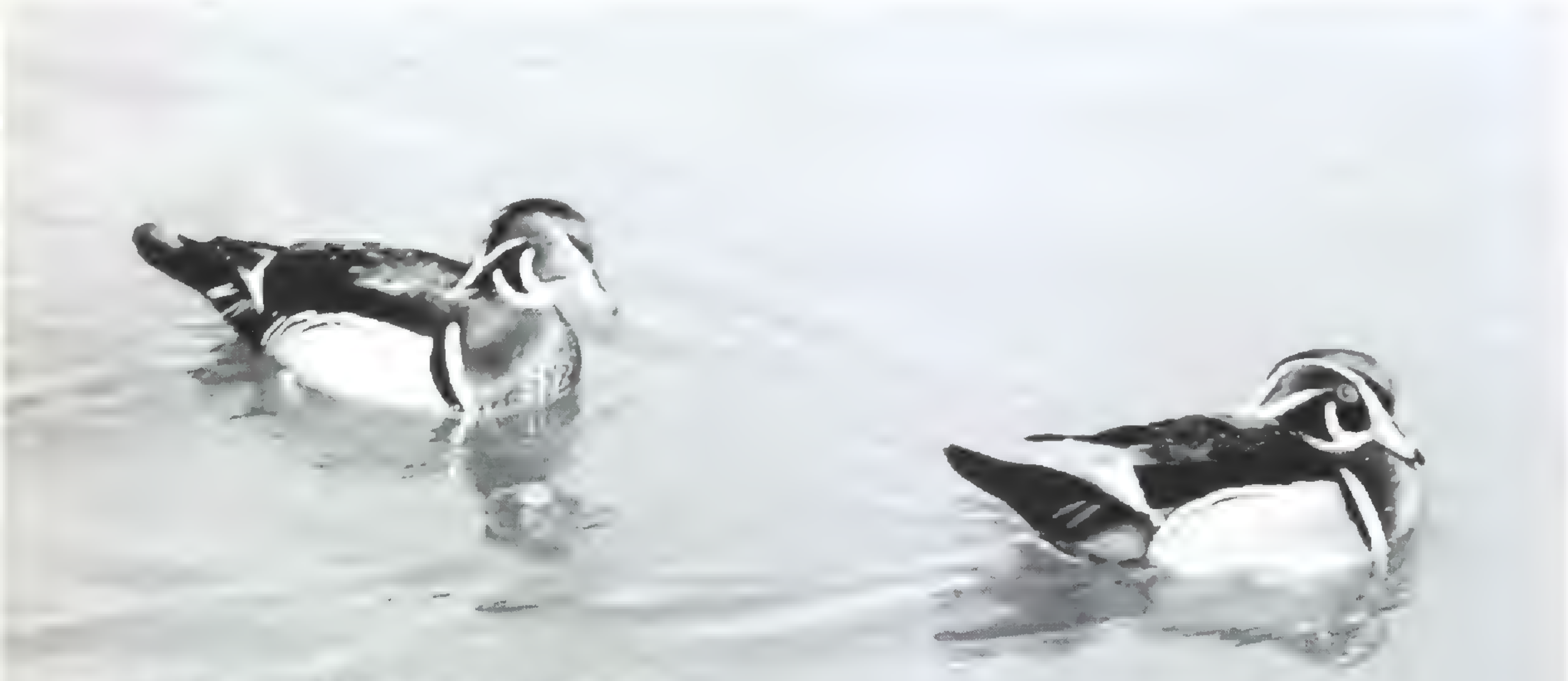
Right: The live otter show was a hit with kids of all ages.

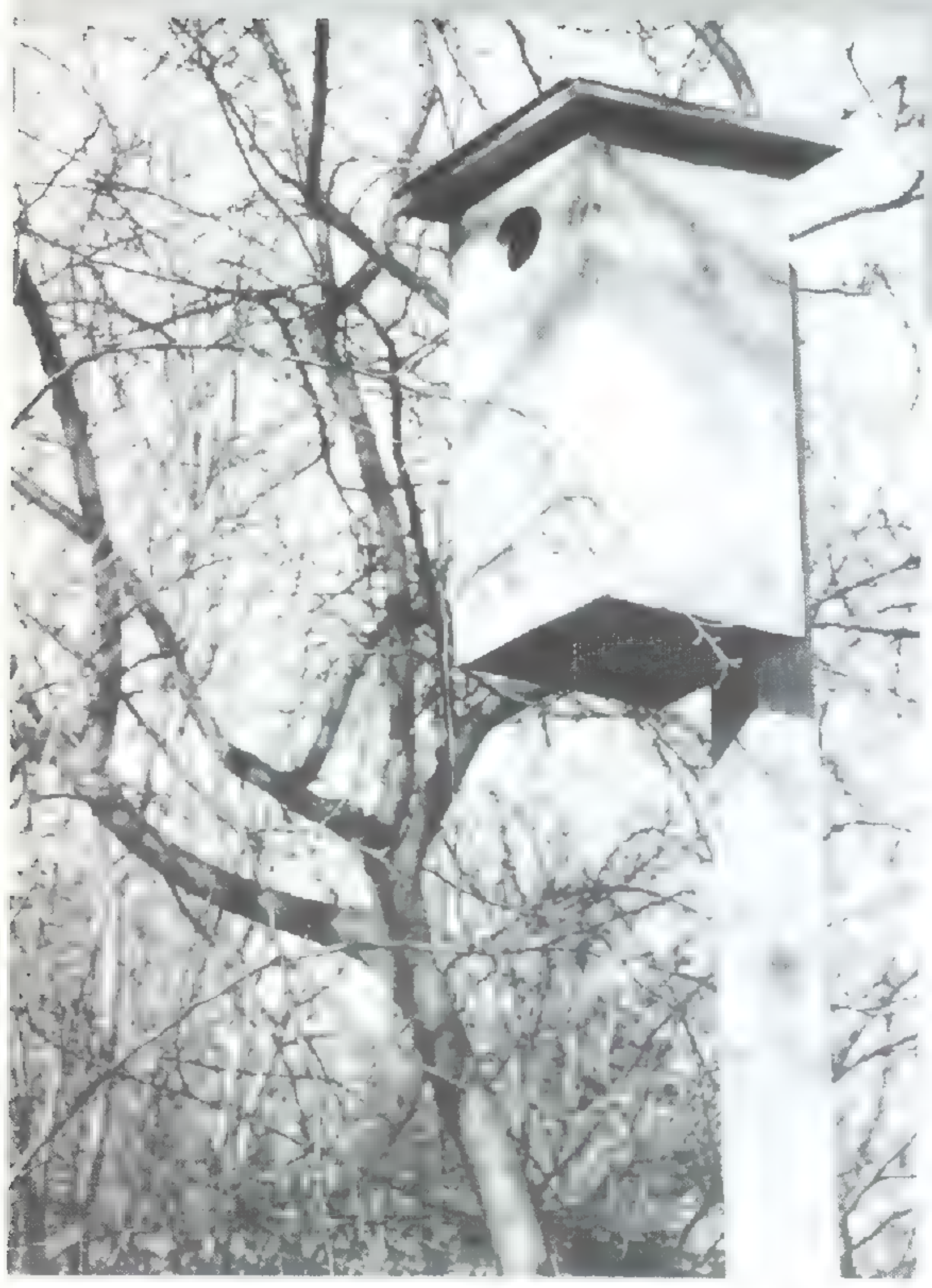
Biodiversity University

EarthFriends Day 1997

Hundreds of visitors of all ages thronged the Ridgway Center for "Biodiversity University" on Saturday, April 5. Everyone had fun learning about the incredible variety of life on earth and the importance of preserving it. Participants included the St. Louis Children's Aquarium, St. Louis Audubon Society, the World Bird Sanctuary, Saint Louis Zoo, the Center for Plant Conservation, and many other organizations.

PHOTOS BY JACK JENNINGS





Above: Two wood ducks in the Japanese garden lake.

Left: One of the Garden's five nesting boxes. Look for them behind the Climatron, in the English Woodland Garden, and around the lake in the Japanese garden.

Watch Out for Wood Ducks!

On your next visit to the Garden, notice the nesting boxes mounted on tall poles in five wooded locations around the Garden. Built by the Garden's controller, Michael Olson, the boxes are made of cypress wood recycled from trees removed from the grounds last year. Plans for building the nesting boxes are available from the Missouri Department of Conservation, and from their Website (see below).

Wood ducks, *Aix sponsa*, are the only "perching ducks" in North America. They like to roost high above the ground near water; nesting season is from mid-February to mid-March. If you are lucky enough to catch sight of them, the males are real showstoppers, with brilliant iridescent plumage, a multicolored head, a bill of red, white, and black with a yellow base, and triangular white accents on head and wings. Watch for wood ducks early in the morning, flying through the trees near the lake in the Japanese Garden. The female has a distinctive, whistling call. — *Prepared with assistance from the Missouri Department of Conservation.*

For more information and building plans for duck houses, visit **http://www.state.mo.us/conservation/nathis/woodwork/woodduck.html** *on the World Wide Web.*

In Memoriam

William McKinley Klein, Jr.

WILLIAM KLEIN, a popular former assistant director of the Garden from 1972 to 1977, died suddenly of heart failure in Coral Gables, Florida, on February 12, 1997. He was 63.

Dr. Klein was a dynamic botanist who made a career of transforming botanical gardens from quiet institutions to centers of activity. For the last three years, Dr. Klein was president and chief executive officer of the National Tropical Botanical Garden, comprising four gardens in Hawaii and The Kampong in Coconut Grove, Florida, where he was visiting at the time of his death.

From 1991 to 1994 he directed the Fairchild Tropical Garden in Miami. He was director of the Morris Arboretum in Philadelphia from 1977 to 1991.

"Bill Klein was a distinguished botanist, a fine person, and a dear friend," said Peter H. Raven. "He made many important contributions here at the Garden, including helping tocreate our Japanese garden. Perhaps most important, he was a leading figure in the very difficult task of interpreting and making our botanical and horticultural treasures more open and accessible to the public. Bill believed passionately that gardens can play a leading role in strengthening our culture and reinforcing our humanity and service to others."

Dr. Klein was a native of Galveston, Texas. He earned his bachelor's and master's degrees from Colorado State University and a doctorate in botany from the Claremont Graduate School. He served in the U.S. Air Force from 1961 to 1965, before joining the Botany Department at Colorado State.

He is survived by his wife, Janet, a son, Darin, and three daughters, Jennifer Klein Morrison, Melissa, and Erica.

FINISHING TOUCHES *Construction is complete on the new Kresko Family Victorian Garden beside Tower Grove House, and planting is well underway. Be sure to stop by this spring and enjoy the beautiful display of brightly colored annuals.*

JACK JENNINGS

VISITORS ARE INVITED *– Members and visitors are always welcome to tour the lovely grounds of the National Council of State Garden Clubs, located just south of the Garden. You will find a path leading into the Garden Club grounds at the south end of the English Woodland Garden. The headquarters on Magnolia Boulevard is not open to the public.*

1996 Annual Report

If you would like to receive a copy of the Garden's *1996 Annual Report*, please call the Development Office, (314) 577-5120. You may also request a copy at the Ridgway Center ticket counter or at the Shoenberg Administration Building, 2345 Tower Grove Avenue.

Villanova Honors Raven

Villanova University presented its Mendel Medal to Peter H. Raven on January 25, 1997. The distinguished award honors the Augustinian priest Gregor Johann Mendel, whose botanical experiments in the 19th century established the basis for the study of genetics. Since it was established in 1929, the Mendel Medal has been presented just 27 times. Recipients include Nobel Laureates, outstanding medical researchers, pioneers in physics, astrophysics, and chemistry, and noted scientist-theologians. Dr. Raven is shown at the ceremony with Rev. Edmund J. Dobbin, O.S.A., president of Villanova University, left, and Rev. Kail C. Ellis, O.S.A., dean of the College of Liberal Arts and Sciences.

CLIFF WILLIS

Raven Receives Master Conservationist Award

The Missouri Conservation Commission presented Dr. Peter H. Raven with the prestigious Master Conservationist Award on March 12, 1997, at a reception at Spink Pavilion. Only 42 people have received the award since its inception 56 years ago. The award honors those who have made substantial and lasting contributions to the fisheries, forestry, or wildlife conservation efforts in the state. Above, Jerry Conley, left, president of the Missouri Department of Conservation, with Peter Raven during the reception.

TRIBUTES

JAN - FEB 1997

IN HONOR OF

Mr. Lester Adelson
Mr. and Mrs. Lester Bamberger
Mr. and Mrs. Jack E. Edlin
Ceci Lowenhaupt
Mrs. Patricia Arnold
Susie Littmann Schulte
Mrs. Judith Aronson
Audrey Senturia
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Jan and Ron Pass
Mr. Phil Rashbaum
Mr. and Mrs. Lester Adelson
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Mr. Toshi Saki
Rohan Woods School – The Junior Kindergarten
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Mr. and Mrs. Tom Wolff
Mrs. Jill Schroer
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Mr. and Mrs. M. Myron Hochman
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The Meszaros Family
Mr. Melvin Strassner
Mr. Howard F. Baer
Mrs. Carol S. Kaufman
Sunset Hills Garden Club
Sunset Hills Garden Club
Mr. Don Thomas
Mrs. Lynn Barth
Jack and Debbie Thomas
Doris M. Thomas
Mrs. Sherry Wolff
Himes and Jean Baker
Fiona and Randy Wood
Mr. and Mrs. William H. T. Bush

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Mrs. Jane H. Johnson
Mr. Aksel Robert Andersen
Regina, Robert, David Verbarg
Bernadine Baer
George G. Curtis, Jr.
James and Louise Felts
Janet Harris and Mark J. Ewing
Samuel and Helen Zibit
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Mr. Robert Bruce
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Richard and June Vandegrift
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The celebration continues with four special weekends in May.

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Sharing the joys of herb gardening for more than 50 years.

8. HOME GARDENING
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16. DAVID AUSTIN ROSES
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19. EARTHFRIENDS DAY
Celebrating the environment with "Biodiversity University."

20. TRIBUTES
Honoring family and friends.

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1997 WHITAKER jazz festival

Shake out your blanket, pack a picnic supper, and head for the Garden to enjoy some of the best jazz in the Midwest.

- 7:30 to 9:30 p.m. in Cohen Amphitheater.
- Lawn Seating • Cash Bar
- Box suppers are available; to order, call (314) 577-9528.
- No alcoholic beverages or glass containers are allowed on Garden grounds.

JUNE 4	**Sessions Jazz Band.** Central Visual and Performing Arts High School Jazz Band performs on Spoehrer Plaza, 6 to 7 p.m.
JUNE 11	**Jeremy Davenport.** Normandy High School Band performs on Spoehrer Plaza, 6 to 7 p.m.
JUNE 18	**Marchel Ivery with the Juneteenth Celebration**
JUNE 25	**Quartet Tres Bien**
JULY 2	**Denise Thimes.** Young Jazz Messengers performs on Spoehrer Plaza, 6 to 7 p.m.
JULY 23	**Latin Jazz — To be announced**

Admission is free thanks to generous support by The Whitaker Foundation. Tickets are not required for Garden members — just show your membership card at the ticket counter for admission. Non-members can pick up tickets two weeks in advance of each concert at the Garden ticket counter or at the University Center at Southern Illinois University at Edwardsville. Tickets will also be available at selected retail outlets — listen to WSIE Jazz Radio 88.7FM for announcements of ticket locations, or pick up a flyer at the Garden.

The Whitaker Jazz Festival is made possible by the generous support of the Whitaker Foundation, which supports the arts in St. Louis to promote our common heritage while celebrating our diversity and encouraging the vitality of our community.

Above – Scene at 1996 Whitaker Jazz Festival. Photo by Cliff Willis.

SIX WEDNESDAY EVENINGS

Missouri Botanical Garden BULLETIN (ISSN 0026-6507)
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JULY/AUGUST
1997

VOLUME LXXXV
NUMBER FOUR

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

THIS SPRING we introduced members and the public to the wonderful new outdoor demonstration gardens at the Kemper Center with six weekends of celebrations and fun. Every weekend welcomed enthusiastic crowds. We extend our thanks to everyone who made this year's Garden Expo such a great success and encourage you to visit often this summer. There is always something new and exciting going on; July is "Kids in Bloom" month at the Kemper Center, and on pages 10-11 you will find complete listings of upcoming activities for children, families, and adults.

The Garden is very proud to be affiliated with Gateway Greening, Inc., an outstanding community service organization. On pages 4-5 we introduce you to the remarkable work Gateway is doing to encourage community development and urban gardening in St. Louis. Like Gateway, the Garden has a corps of dedicated volunteers; on page 15 we pay tribute to the men and women who have been volunteering at the Garden for ten, twenty, and even thirty years. Their contributions are extraordinary, and it is impossible to imagine the Garden without their friendship and support.

There are exciting developments from the Research Division and the Center for Botanical Informatics, which are described on pages 16-17. I encourage each of our members to plan to join us at a special preview party at the new Research Center on September 20. And please join us for everyone's favorite event, the Japanese Festival, on Labor Day weekend. It is a fitting finale to the wonderful summer season here at the Garden.

– Peter H. Raven, Director

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400
24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522
You will need a touch-tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401
Information on jobs and volunteer opportunities at the Garden is available with a touch-tone phone. Listings are updated bi-weekly.

Horticultural Answer Service: 577-5143
9:00 a.m. to noon, Monday through Friday.

Master Composter Hotline: (314) 577-9555
9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:
http://www.mobot.org/

Mailing Address:
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(314) 577-5100

Garden Hours
9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Kemper Center for Home Gardening:
9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: open until 8 p.m., Tuesday through Saturday. Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop: 9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: 9 a.m. to 6:30 p.m. daily, Friday and Saturday open until 7 p.m. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant:
Buffet service during hours the grounds are open.

Tower Grove House: 9:45 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January. Admission is free for Garden members.

Shaw Arboretum
Shaw Arboretum is located in Gray Summit, Missouri, just 40 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. Admission is free for Garden members. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House open 10 a.m. to 4 p.m. daily, closed on Mondays. For information call (314) 451-3512.

Moving?
Please remember to send us your new address.
To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this Bulletin and mail to:

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On the Cover

Native sunflowers, *Helianthus annuus*, make a spectacular display in the demonstration gardens at the Kemper Center.
– Photo by Jack Jennings

Editor
Susan Wooleyhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members. For information, please call (314) 577-5118

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PHOTOS BY CLIFF WILLIS

Mary Phelan, left, and the rest of the Members' Board invited kids to "Decorate a Potted Plant for Mom" on May 10.

Dancing Flowers from the Lucille Rapp Dance Studio, Blake Bachman and Kaelin Wandless, gave out free seed packets to members at the Kemper Center Grand Opening, including MBG horticulture staffers Walt Behrendt and June Hutson, above. Right, 6th and 7th grade art students of Mrs. Pat May from St. Joachim and Ann School made the colorful sunflower decorations for the Kemper Center.

Garden**Expo**

1997

The outdoor demonstration gardens at the William T. Kemper Center for Home Gardening were the centerpiece of the Garden's annual spring gardening extravaganza. Six weekend celebrations welcomed thousands of visitors for demonstrations, workshops, and just plain fun for everyone.

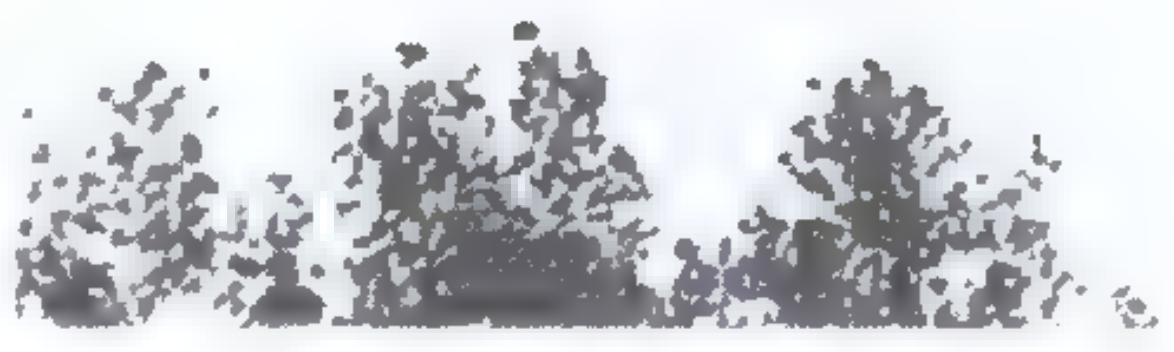
Above: Donald Featherstone and his wife Nancy were on hand for the "Flamingo Fly-In" to celebrate the 40th anniversary of his invention of the pink flamingo lawn ornament.

Left: Felder Rushing demonstrated yard art, "The Good, the Bad, and the Unbelievable."

Horticulture staff gave hands-on demonstrations in the outdoor gardens. Below, Steve Cline, manager of the Kemper Center, demonstrates soil preparation techniques.

Just Dropped In —

A HIGHLIGHT of the Members' Grand Opening on May 3 was a visit by Joe Jennings, world champion sky surfer, who arrived by parachute in spite of gusty winds to deliver the shears used for the ribbon cutting that officially opened the demonstration gardens. From left: Jack Jennings, photographer for the Garden; Peter Raven; Joe Jennings; David Kemper, Garden Trustee and representative of the William T. Kemper Foundation; William Bush, president of the Board of Trustees; and Dr. Ron Turner, president of University Extension.



Gateway Greening

Gardening Partnerships for Community Development

THIS SPRING the Garden formally joined with Gateway Greening, Inc. to provide outreach services to the St. Louis community. Gateway Greening, formerly known as Gateway to Gardening, has been based at the Missouri Botanical Garden for four years. In 1993 the Garden joined with Gateway and University Extension to form the Urban Gardening Partnership, which Gateway now oversees.

The Garden provides Gateway Greening with offices and administrative services at the Lee Education Center on Castleman. Gateway's small staff of professional social workers is assisted by student interns and a dedicated corps of over 100 volunteers. Gateway has its own Board of Directors and receives support from the Missouri Department of Conservation, St. Louis Jefferson Solid Waste Management District, the Community Development Agency, the Whitaker Foundation, St. Louis Community Foundation, the Webb Fund, Trio Foundation, the Pitzman Fund, and many other organizations and individuals.

Promoting Community Developent

By building partnerships with community groups and civic agencies, Gateway helps volunteers fight urban decline and build pride in their neighborhoods. Founded as an all-volunteer organization in 1984 to promote urban vegetable gardens, Gateway has grown to emphasize much more extensive "greening" projects, such as reclaiming vacant lots, establishing gardens, and landscaping urban spaces.

Neighborhood Greening

"Greening projects promote community development by helping residents make an immediate, positive impact on their neighborhoods," said Gwenne Hayes-Stewart, Gateway's executive director. "The projects require teamwork and commitment, which has lasting and far-reaching effects.

"Our projects start with dedicated neighborhood residents who already garden on their own," she said. "When a group gathers with a plan, Gateway is there to help. Some groups create a community vegetable garden with raised beds, water lines, benches and tables. Others want to put in street planters or a mini-park. We help with funding, supplies, and training; once the projects are established, the neighborhood volunteers are responsible for maintainance. People learn new skills and really work together!"

With major support from the Missouri Department of Conservation, the Urban Gardening Partnership established four Neighborhood Greening projects in 1996 and ten projects in 1997. The program includes a series of winter classes for community gardeners held at the Missouri Botanical Garden, a quarterly newsletter, and an annual awards competition. Staff members from the Garden's Kemper Center for Home Gardening work closely with the neighborhood greening program, teaching classes, helping with events, and arranging for donations of plant materials.

Community Gardens and Schools

Today Gateway Greening supports 85 community gardens and 70 school projects. They distribute indoor Grow Labs and worm bin composters to schools and help classes tend outdoor gardens, with help from St. Louis Master Gardeners.

Enterprise Community

In 1996, the Urban Gardening Partnership joined with Operation Brightside to complete 24 beautification projects over a two-year period. The projects include boulevard plantings, perennial borders, and street plantings in the Enterprise Community, supported by Federal Enterprise Community funds from H.U.D. The program hires personnel from the Enterprise Community and trains them at the Missouri Botanical Garden.

The Bell Garden Showcase

The Bell Community and Demonstration Garden at the corner of Bell and Vandeventer in St. Louis is an outstanding example of a flourishing community garden, with over 70 raised beds, a picnic shelter, sitting area, demonstration beds, a lath house, and compost pick-up site. Gateway and the neighborhood host many events there, and it is open to visitors every Saturday from March 1 through October 31.

The Great Perennial Divide — A Great Success!

On Saturday, April 26, more than 12,000 plants were distributed to 70 registered community gardens in the first annual "Great Perennial Divide." Our deepest appreciation goes to more than 600 volunteers and donors who made the event such a resounding success.

Win a Moon Garden!

There is still time to purchase a chance to win the Great Perennial Divide Moon Garden, an all-white flowering garden to be planted on a site of your choice by Gateway volunteers. The drawing will be held August 1 as part of the Urban Gardening Competition luncheon and bus tour of award-winning gardens. Please call 577- 9484 for information.

Rooting Communities Together

Left: Neighbors gather in the Bell Community and Demonstration Garden.

Below: Leaders of the Carpenter Place Community Garden.

Far left: In the Fox Park Farm Community Garden, volunteer Leo Hageman lays a brick path to provide access for a gardener who is disabled.

Below: A work crew at the Enterprise Community Greening Project at St. Stephens Church and the Grace Hill Wellness Clinic, in the Peabody / Darst Webbe neighborhood.

Volunteers at the Great Perennial Divide (from left): Organizers Peg Whitmire and Missy Ramey, chair of Gateway's Board; volunteer Sheba Haner; and Pat Payton, who helped organize the event and made major donations of plants.

The New Butterfly Trail

Living Color in the Climatron

CLIFF WILLIS

Above: Tom Hecker inspects the chrysalis stand and plants in the new butterfly area in the Climatron. Tom, who joined the conservatory staff in November, is a horticulturist who specializes in plant interactions with insects, birds, and animals.
At left: The postman butterfly, Heliconius erato.

THE NEXT TIME you visit the Climatron, watch for brightly colored tropical butterflies flitting by. The newest residents of the Climatron include the postman, *Heliconius erato*; the zebra longwing, *Heliconius charitonius*; and the Julia, *Dryas julia*. The Climatron's large collection of *Passiflora*, or passion vines, serve as larval host plants. New nectar and food plants have been added so the butterflies can complete their life cycles and reproduce.

To see the greatest concentration of butterflies, follow the signs to the new Butterfly Trail just inside the south door of the Climatron. The display features a chrysalis stand, where lucky visitors may see butterflies emerging, usually between 10 a.m. and 2 p.m. on sunny days. Watch for new butterflies to be introduced later this summer, which may include gold-rim swallowtails, *Battus polydamas*; white peacocks, *Anartia jatrophe*; giant swallowtails, *Papillio cresphontes*; ruddy daggerwings, *Marpesia chiron*; malachites, *Siproea stelenes*; and orange-barred sulphurs, *Phoebis sennae*.

The Black Lagoon?

JACK JENNINGS

If you have wondered about the gray/black water in the water lily pools, don't be concerned — the color is caused by a compound of potassium permanganate which the Horticulture Division began using last year to inhibit algae growth and conserve water. It is not an algaecide; rather it prevents the growth of algae by absorbing sunlight. The compound is non-toxic to plants whose leaves are at or above the surface of the water.

Traditional algae control requires the use of toxic copper compounds and/or a constant stream of fresh water flowing through the pools, which wastes water and keeps the temperature in the pools relatively cold. "The dark color of the water absorbs heat, maximizing the growth and flowering of the tropical water lilies," said Boyce Tankersley, Curator of Living Collections. "It has been a real success."

Announcing Missouri Botanical Garden Travel

1998 Natural History Adventures

Patagonia Adventure
January 11 – 26, 1998

Belize: A Naturalist's Quest
February 20 – March 2, 1998

Exploring the Sea of Cortez
April 10 – 17, 1998

Tambopata: Wild, Untamed, Uninhabited Amazonia
August 7 – 16, 1998

Madagascar: A Deluxe Wildlife Adventure*
October 16 – 26, 1998
* Co-sponsored with the Saint Louis Zoo

Watch upcoming issues of the Bulletin for details, or call (314) 577-9506.

Mullanphy Botanical Garden Magnet School

Learning with Science

Energy Research Project

Alicia Ivory House of the Garden's Education Division provides full-time enrichment programs for preschool through grade 5 at Mullanphy Botanical Garden Investigative Learning Center. Mrs. House's fifth grade students spent the year studying energy and how it relates to every aspect of their daily lives. Their Energy Research Project culminated in a Fossil Fuels Exhibit, which filled the entire main hall of the school. Each fifth grade class prepared part of the display, which integrates skills in language, research, writing, design, and teamwork.

SOLID FUELS

Right: Mrs. House and fifth grade students with one panel of the Fossil Fuels Exhibit. Students learned about concepts of energy, non-renewable resources, and how to work for conservation of fossil fuels.

Science Fair Winners

In April, students from Mullanphy ILC made an outstanding showing in the 50th annual Greater St. Louis Science Fair, sponsored by Monsanto Corporation and the St. Louis Post-Dispatch. Mullanphy students won eight first place, nine second place, and three third place ribbons for Kindegarten through fifth grades. The Missouri Botanical Garden collaborates with the St. Louis public magnet school to integrate science with a complete curriculum and enhance students' critical thinking skills.

An Outdoor Classroom

Students, teachers, and volunteers maintain an ambitious garden at the Mullanphy Botanical Garden ILC, where they learn while growing vegetables, flowers, and cover crops. Classes from grades three through five are assisted by Master Gardener Helen Hannon (kneeling, center), who has been working with the garden at Mullanphy since 1993. This spring Mrs. Hannon received the St. Louis Public Schools "Just Because" award, which honors an outstanding volunteer.

A Garden Parade

On May 20, over 200 Mullanphy students and their teachers celebrated their United Nations Festival with a costumed parade from the school on Shaw Boulevard to the Garden and around the grounds.

VOLUNTEER OPPORTUNITIES

New Garden Guides Training Class Begins in October — Register Now!

IF you love children and plants and have at least one free day a week, now is your opportunity to join the Garden Guides, a group of 70 active volunteers who lead study walks of the Garden for over 12,000 children each year. There are openings for 20 to 30 people in the training session that begins in October.

New Garden Guides will receive four sessions of training over a two-year period. Training sessions will provide information about plants and the environment, practice in presentation, and orientation to Garden collections. The first session will be held from 9 a.m. to 3 p.m. each Monday from October 13 through November 27, 1997. The second session will be held between February 23 and March 31, 1998. In the 1998-99 school year, new Guides will attend eight additional sessions.

To apply for the Guides program or for more information about volunteering at the Garden, please call Jeanne McGilligan, (314) 577-5187.

Share the Wonders of Nature as a Volunteer Teacher-Naturalist

Shaw Arboretum is looking for enthusiastic, committed people to work as volunteer Teacher-Naturalists with the education program. The volunteers lead outdoor classes for school children, with activities focusing on sensory awareness and ecology. People who are interested in this position must enjoy working with children, be available during the week, and possess a keen interest in learning more about natural history. Some knowledge of ecology and natural history is helpful but not necessary. A training program for new Teacher-Naturalists begins in September, 1997. For more information please call Miriam Krone at (314) 451-3512.

WOODLAND GARDENS: MADE IN THE SHADE

THERE'S no getting around it — lavish displays of flowers and sweeping lawns require direct sunlight to thrive. But perhaps you have a property with mature trees, or find that nearby trees have grown and spread over time, shading out sun-loving plants. Don't despair — in our hot Midwestern summers, a shady landscape can be both desirable and delightful.

Trees and shrubs act as a buffer to winter winds and summer sun, helping to decrease heating and air conditioning costs. Plantings also shield your property from traffic noise, adding quiet and privacy to your garden.

Many beautiful plants grow in shade in their natural habitats. For an outstanding example of a mature woodland display, visit the English Woodland Garden. At the Kemper Center, you can monitor the development of two new shade displays, the Shade Garden and Overlook and the Missouri Native Shade Garden.

Three Layers

The finest shade gardens are designed to imitate the appearance of a natural woodland. Three distinct levels of vegetation will be present, dominated by an upper canopy of large trees. In Missouri our many indigenous oaks and hickories are ideal. Sugar hackberries, hard maples, and tulip poplars also work well.

The second layer is woody understory, which consists of small trees and shrubs such as flowering dogwoods, redbuds, and azaleas. The third layer is the ground-level plantings including hardy perennials, ground covers, and bulbs, as well as the many native woodland wildflowers.

Types of Shade

Many degrees of shade exist. The quality of light is an important factor. Few plants can tolerate very deep shade such as you find beneath hemlocks or pines. Dappled shade occurs where some sun filters through an open branching pattern and is generally considered ideal for the greatest number of species. Many shade plants do well or at least tolerate sites with morning sun, but they may droop or scorch in the heat of direct afternoon rays.

If shade is too dense for the plants you want to grow, consider several options. The tree canopy can be thinned by selectively removing some branches to allow more light to penetrate. Or the canopy may be raised by removing lower branches to allow the penetration of more reflected and filtered light, creating "high shade." In certain situations, removing some trees entirely may be the best answer.

Protecting Trees

It takes many years to grow a tree to a size that effectively provides shade. Trees rely on their roots to provide stability, nutrients, and oxygen. Many ambitious gardeners have installed extensive shade plantings only to discover that mature trees were irreparably damaged in the process.

Take precautions when developing and planting your site. Rototilling too close to the base of a tree may injure the woody roots, weakening the tree's stability and making it vulnerable to pests and diseases. Also avoid adding soil over the root zone, which essentially suffocates the tree.

Unless you are cautious, injured trees may weaken and die just as your shade-loving underplantings are reaching maturity. A safer means of preparing planting sites close to tree trunks is to excavate and amend pockets of soil where individual trees or shrubs are to be placed, rather than tilling the entire area. Farther out from the trunk, more extensive tillage can be undertaken.

Trees can regenerate their fine, hairlike "feeder" roots quickly, but this is not so for the thick, woody roots that flare out at the base of the tree. A good rule of thumb is to avoid planting any closer than a circle equal to three times the diameter of the trunk, measured from the outside of the trunk.

The English Woodland Garden

KING SCHOENFELD

Shallow-rooted trees with many large surface roots, such as maples, sweet gums, and elms, are especially difficult to work around. Mulching over the roots can be an acceptable and attractive solution. Ground covers can fill in and soften the roots' appearance.

Soil Preparation

To minimize stress on new plantings, time the site preparation to take advantage of either the fall or spring planting seasons. Start by having the soil tested. This will be helpful in determining pH, critical to some woodland plants such as acid-loving azaleas and rhododendrons, and will also provide information about the presence or absence of other essential nutrients. For your convenience, the Kemper Center offers a soil testing service and information.

Most woodland plants thrive in moist, well-drained, humusy soils containing abundant organic matter. Tree roots draw considerable moisture from the soil. The moisture-holding capacity and the nutrient content of soils can be improved by incorporating compost, peat moss, well-rotted manure, or leaf mold into the top soil at each planting site.

Beds should either be dug by hand or tilled as deeply as possible, incorporating a minimum of at least two inches of surface-applied organic matter into the soil. The soil should be allowed to rest and settle for at least two weeks before planting. After planting, beds should be mulched with two to four inches of leaf mold.

Avoid the mistake of overplanting to achieve an instant effect. Give plants plenty of room to grow. Proper spacing not only eliminates the need for wasteful thinning, but also ensures good air circulation and minimizes the risk of fungal diseases.

Maintenance

Any new plantings will require more frequent watering to help them get established. Generally, deep waterings spaced out as needed are preferable to superficial, very frequent waterings. Soil type, drainage, weather conditions, and the types of plants will determine water requirements.

Young trees and shrubs may need to be pruned and trained to develop a healthy framework of branches. Dead wood should be removed promptly, and overcrowded perennials will need to be lifted and divided as often as is necessary.

Ideally, the entire woodland garden should receive an annual top dressing of at least two inches of mulch to maintain the humusy soil conditions so vital to the health of the plant community. This is best done at the end of June or early July.

Plant Selection and Design

Species adapted to the region will be most likely to succeed, so it makes sense to use native plants whenever possible, adding hardy exotics for interest and variety.

Develop a plan using plants of various heights, including small understory trees, shrubs, perennials, and bulbs. Interplant species to provide a longer range of bloom. Many spring wildflowers and bulbs produce a flush of growth early in the season and bloom before trees leaf out. As the season progresses and shade deepens, their foliage diminishes and dies back after flowering. Other plants that develop later, such as astilbe, goatsbeard, ferns, and hostas will fill in these areas, masking dead or dying foliage.

Pathways are also a key element, providing access to plants and defining planting areas. Woodland paths are

continued on page 10

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9190
American Orchid Society (Mid-America Regional Judging Committee)	David Brown	727-2385
Belleville Area Rose Society	Dennis Nelson http://users.accessus.net/~rosenut	(618) 233-4609
Bonsai Society of Greater St. Louis	*Bob Harris*	352-0817
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
Federated Garden Clubs of Missouri, Inc.	*June M. Kummer*	821-5075
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Ron Bilchik*	991-5008
Greater St. Louis Iris Society	*Jim Loveland*	349-4977
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*Bob Preis*	677-8805
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Walter Clark*	230-0726
Rose Society of Greater St. Louis	*Robert W. Schneider*	524-3167
St. Louis Evening Herbalists	*Beth Holbrooke*	434-6152
St. Louis Herb Society	*Barb Ottolini*	532-4644
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
St. Louis Hosta Society	*Mirko Bolanovich*	965-7471
St. Louis Water Garden Society	*Bonnie Alford*	962-2663
West County Daylily Club	*Roy Bohrer*	240-8780

Beginning with this issue, this directory will be published just twice a year, in the January and July issues of the *Bulletin*. To change your listing, please send a written notice by December 1 or June 1 to: Bulletin Editor, Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, or call (314) 577-5123.

Woodland Gardening

continued from page 9

more attractive if they wander through the garden. Gravel, brick, or stone can be used, but the simplest paths of bark or chopped leaf mulches will create a more natural feel.

Texture

An interesting variety of plants will complement one another just as contrasting fabrics like tweed, corduroy, and velvet may be combined to create a rich effect. For example, oakleaf hydrangea, *Hydrangea quercifolia*, has a somewhat coarse appearance compared to the Japanese rose, *Kerria japonica*, which has smaller leaves and finer twigs.

Color

Shade plants will not provide the profusion of brilliant blooms typical of sunny borders, but many do have lovely flowers. They also come in an exciting array of foliage types and colors that can be combined to create wonderful designs.

Hostas have particularly attractive foliage, and some have showy flowers. They come in a wide range of sizes, from tiny miniatures to huge mounds. Leaf colors range from gold, chartreuse, and powdery blue to dark or bright green. The many variegated types have striking white or yellow markings.

Ground covers provide a carpet effect beneath large specimen trees or shrubs and are easy to divide, enabling gardeners to expand plantings economically. Creepers, such as vinca and spotted dead-nettle, or spreaders like pachysandra and lily-turf, work well for concealing roots. English ivy and wintercreeper euonymous, while popular, are also extremely invasive and should be used judiciously.

Ground covers with light green foliage and those variegated with silver, white, or gold markings help brighten up dark corners of the garden and provide a pleasing contrast to deep-colored plantings. Variegated liriope, yellow moneywort, yellow archangel, and ornamental dead nettles are attractive choices.

Nursery Propagated Wildflowers

In choosing plants for the woodland, it is important to be aware that many beautiful wildflowers are difficult to propagate or may require very specific conditions to survive. Almost all wild orchids and many trilliums fall into this category.

When buying from a nursery, look for plants that have been "nursery propagated" and not dug from the wild. Be wary of the phrase "nursery grown," as this legally may be applied to plants dug or collected from the wild and repotted and grown in a nursery for a short time.

Be cautious of nurseries offering many difficult to propagate wild plants at very low prices. They are probably harvesting from the wild. Likewise do not remove wildflowers and plants from their native sites.

For complete listings of trees, shrubs, ground covers, perennials, and other shade plants recommended for our area, visit the William T. Kemper Center for Home Gardening.

Don't forget to call HortLine, (314) 776-5522 for answers to gardening questions 24 hours a day. For an up-to-date listing of Plants in Bloom at the Garden, press 3 when you call HortLine.

CLIFF WILLIS

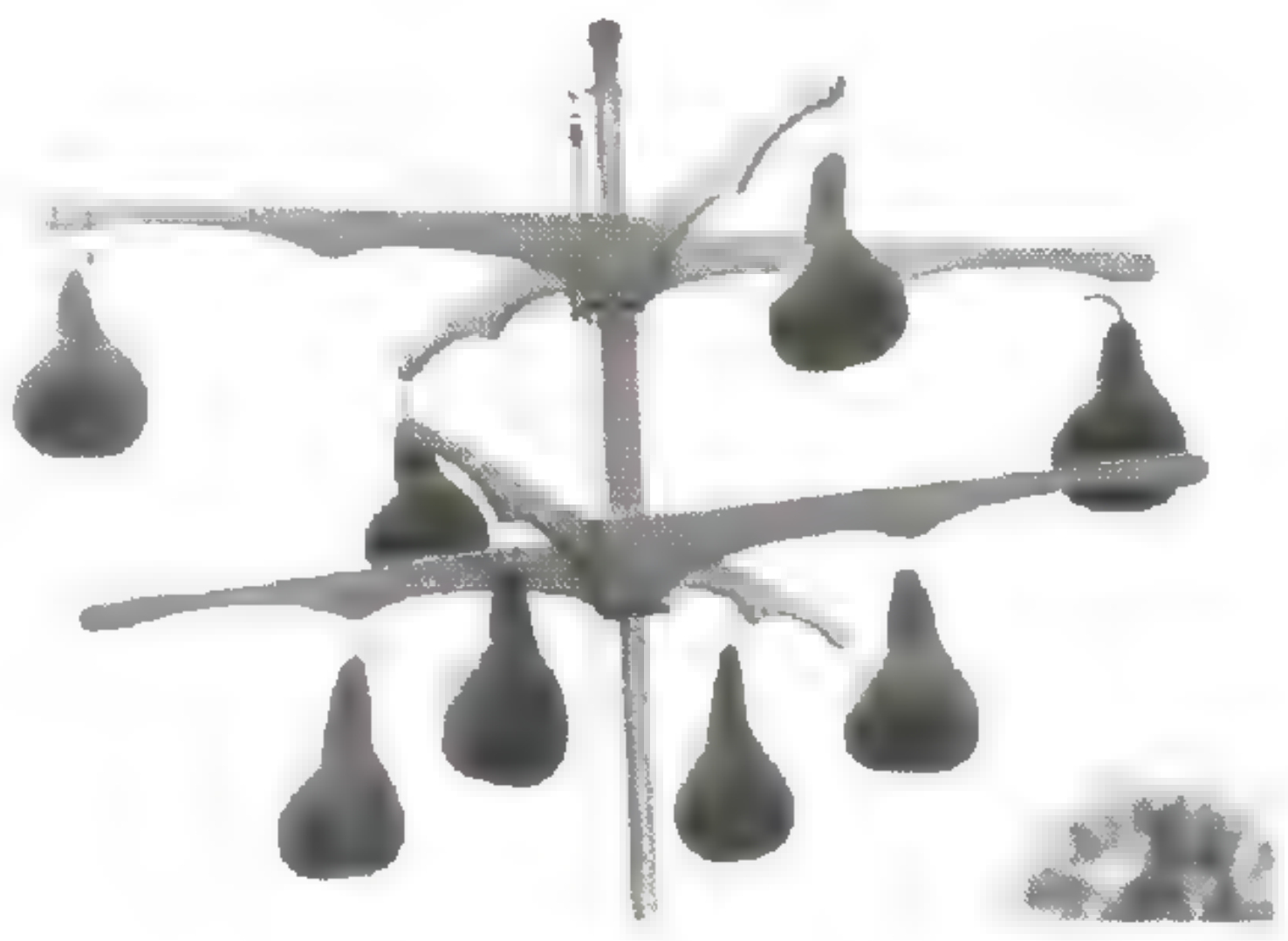
The Experimental Garden

SEE RESULTS of the latest research from Monsanto to overcome problems that affect the global food supply. Four plots have been planted with species genetically engineered to combat common agricultural pests: YieldGard® corn, NewLeaf® potatoes, Roundup Ready™ soybeans, and Bollgard™ cotton. All of these crops have been approved by the appropriate federal agencies and are being grown commercially.

The Hair Plot No, it's not a mystery novel about a beauty parlor, it's a fuzzy looking bed in the Experimental Garden that uses human hair as fertilizer. The results, in comparison tests with other fertilizers, are amazing; come see for yourself!

This Summer at the

Kemper Center for Home Gardening


CLIFF WILLIS

For the Birds

This tower in the Bird Garden isn't a strange new sculpture — it's a bird condominium with individual birdhouses made from dried, hollowed-out bottle gourds. Some of the gourds were grown in the Family Vegetable Garden last summer.

The wonderful handcrafted birdhouse at left is complete with a TV antenna, chimney, porches, shutters, and weathervanes. It was made by Walter M. Dreher and donated to the Garden in his memory by his wife, Mary Lee Dreher, last February. We are very grateful to Mrs. Dreher for sharing this delightful creation with Garden visitors.

Sun Power

SOLAR ENERGY for gardeners is here to stay, and the Kemper Center is the place to see the future. Check out the solar powered drip irrigation system, the fountain in the pool at the Children's Garden, and the solar-powered lawnmower for some new ideas on saving energy, water, and reducing air pollution.

Solar Lawnmower

It isn't a radio-powered pizza tray or cousin to R2D2; that's a solar-powered lawnmower trundling around the turf in the middle of the Kemper Center gardens. The Weed Eater® Robotic Solar Mower maintains 13,500 square feet of relatively sunny lawn, guided by onboard sensors and a wire installed around the lawn's perimeter. The machine cuts continuously and almost silently, avoiding shade and obstacles while it follows a random pattern that eventually cuts the entire lawn and scatters the trimmings as mulch. "As a prototype, it shows tremendous promise," says Steve Cline, manager of the Kemper Center. "In the near future it will be practical technology for the home gardener, helping to reduce our use of fossil fuels." Brad Schneider, a new member of the staff at Kemper Center, is shown below with the solar mower and the sign that describes it.

CLIFF WILLIS

Solar Irrigation

If you're tired of seeing your water bill skyrocket every summer, consider the ecological approach. The Kemper Center catches rainwater on the roof and stores it in the barrels shown below, then uses a pump powered by solar panels to deliver it to plants as needed. Soaker hoses made from recycled tires and drip irrigation pipes help to maximize water conservation with this self-sustaining system.

CLIFF WILLIS

July is "Kids In Bloom" Month

Saturdays in July, 10 a.m. to 2 p.m.

CELEBRATE with fun-filled, hands-on activities led by staff and volunteers. Drop by the Kemper Center anytime between 10 a.m. and 2 p.m. and make something fun to take home. Activities are free with Garden admission, and registration is not required.

July 5	"Munchable Mints"
July 12	"Which Bees Are These?" (Beekeepers will be present.)
July 19	"Nature Masks"
July 26	"Sproutable Seed Necklaces"

CLIFF WILLIS

Work and Tell Demonstrations for Adults

"Cutting and Drying Flowers"
Saturdays in August
11 a.m. to noon

Drop by the Summer Plant House for free, hands-on demonstrations. Registration is not required.

Summer Cooking and Gardening Classes at the Kemper Center

It's not too late to register for summer cooking and gardening classes for adults. Please call (314) 577-9441 for a brochure and registration information.

Family Fun Series

JOIN the Kemper Center staff for creative family activities using materials gathered from the demonstration gardens. Each child aged 6 to 12, assisted by a parent, will create unique crafts to take home. Classes are limited to 15 children; please, only two children per adult. $18 per child includes all materials, and parents attend free. All classes will be held in the Kemper Center classroom. Call (314) 577-9441 to register.

Pressed Flower Creations

Saturday, July 12
1 to 2:30 p.m.

Decorate notecards and a keepsake box with beautiful pressed flowers. Put your personal touches on these special, one-of-a-kind mementos and learn how to press flowers for future decorating projects.

Three Sisters Garden

Saturday, August 2
1 to 2:30 p.m.

According to Iroquois legend, the corn, the bean, and the squash are three sisters that must always live together to be happy. Join us as we celebrate these life-sustaining crops with crafts, stories, and traditional recipes.

Calendar

CLIFF WILLIS

Save the Date —
Saturday, September 20, 1997

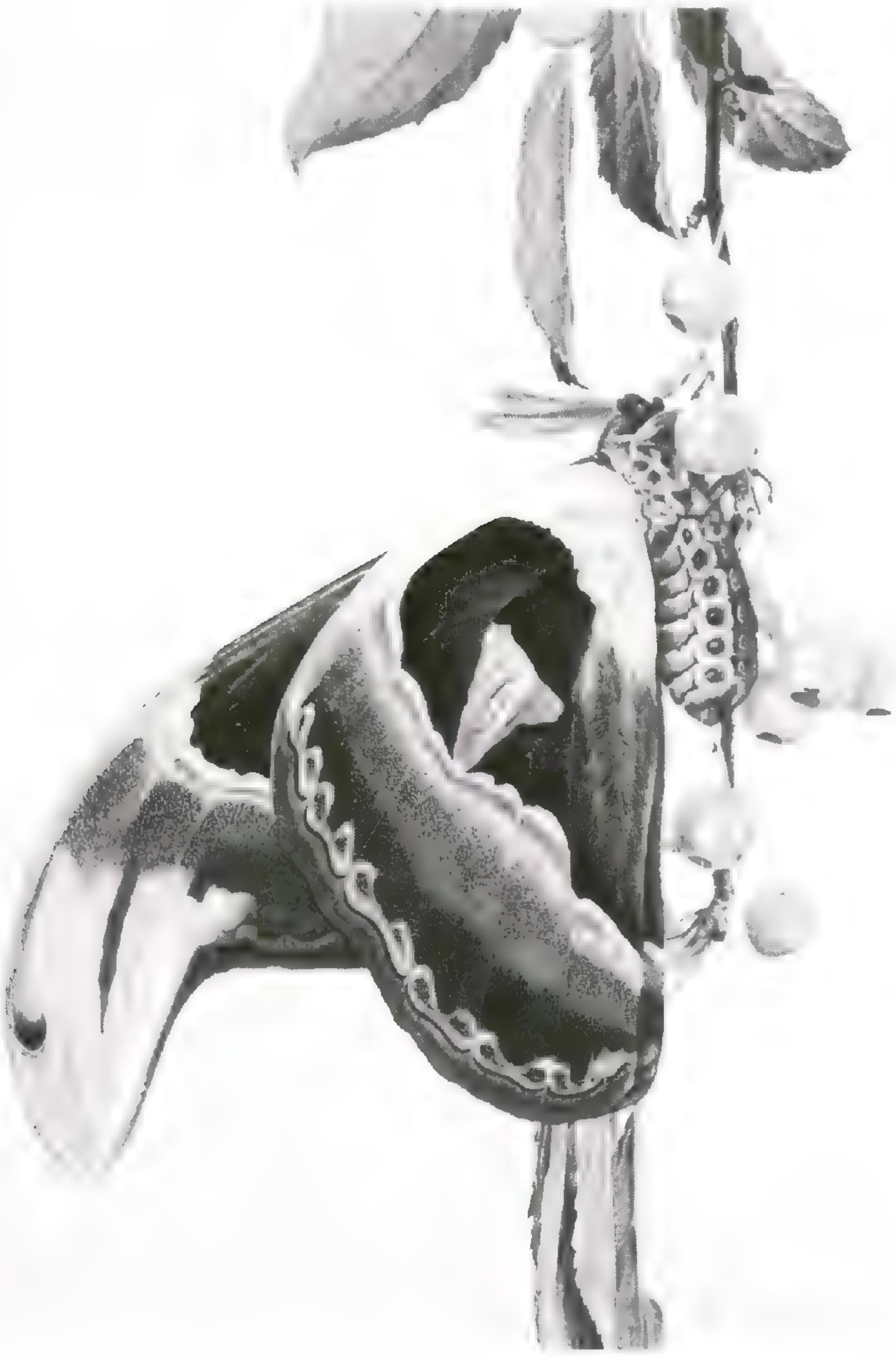
Sneak Preview of the New Research Center

Be among the first to get a look inside the Garden's new Research Center as it nears completion. See the September Bulletin for details.

July 1 — August 15

John Cody: "Audubon of Moths"

9 a.m. to 8 p.m. daily, Monsanto Hall. Breathtaking watercolor paintings of the giant Saturniid silkmoths. Dr. John Cody has been captivated by these enigmatic and endangered tropical creatures since childhood. He has had one-man shows at the American Museum of Natural History and the Smithsonian Institution and holds top honors from Audubon Magazine, the Association of Medical Illustrators, and many others. Free with regular Garden admission.



The Atlas Moth of Asia, *Attacus atlas*, by John Cody M.D.

July 15 — September 14

Grette Herrick Wildflowers

Bascom Manor House, Shaw Arboretum. 1 a.m. to 4 p.m. Tuesday through Sunday, closed Mondays. Watercolors by wildflower artist Grette Herrick.

July 16 Wednesday

"Treasures from the Kingdom of Fungi"

7:30 p.m., Shoenberg Auditorium. A thrilling multi-media presentation of magnificent photographs by Taylor Lockwood, with all-new images from his 1995 trip to Australia, New Zealand, and Tasmania. Co-sponsored by the Missouri Mycological Society. Admission at the door: $4 members, $5 non-members.

July 19 — 27

Henry Shaw Cactus Society Show and Sale

Saturday July 19, noon to 8 p.m.; July 20 — 27, 9 a.m. to 8 p.m. Orthwein Floral Display Hall. The 53rd annual show and plant sale features a wonderful array of cacti and succulents, including selections from the Garden's collection. Proceeds support the Missouri Botanical Garden. Free with regular Garden admission.

Wednesday July 23

Garden Sampler: "The Salsa Garden"

5 to 7 p.m., Kemper Center. Enjoy foods grown in the Kemper Center gardens, learn to make salsa from your own home garden, and sample salsas from several St. Louis companies. 7:30 to 9:30 p.m., Latin jazz concert by The Rob Block Latin Jazz group. There will be a small fee for the salsa fest; the concert is free. Call 577-9400 for information.

July 27 Sunday

Henry Shaw's Birthday Celebration

Tower Grove Park, 10:30 a.m. to 12:30 p.m.; Missouri Botanical Garden, 12:30 to 3 p.m. Celebrate the 197th birthday of the founder of the Garden and Tower Grove Park, which is also celebrating its 125th anniversary. Music, refreshments, historic tours of the Park and Tower Grove House, children's activ-

Tuesdays, Wednesdays, and Thursdays

Tower Grove House Luncheons

Noon, three days each week. The Tower Grove House Auxiliary serves luncheon in the Tea Room. Reservations are required; please call 48 hours in advance, 577-5150.

Wednesdays & Saturdays *Garden Opens at 7 a.m.*

Outdoor grounds open at 7 a.m., greenhouses open at 9 a.m. Breakfast is available in the Gardenview Restaurant between 7 a.m. and 10:30 a.m.

Every Day *Free Walking Tours*

1 p.m. daily. Meet the Garden Guides at the Ridgway Center ticket counter, rain or shine, for a tour of the grounds. Free with Garden admission. For groups of fifteen or more, reservations are required, with five weeks advance notice. Call (314) 577-5140 to arrange a tour for your group.

ies, plus a parade from the ark to the Garden and a pecial appearance by Henry haw himself. Free with arden admission.

uly 27 Sunday

ris Society Sale

1 a.m. to 5 p.m., or until old out. Monsanto Hall. The reater St. Louis Iris Society olds its annual sale of sur- lus rhizomes from the arden's iris display. Shop arly for best selection! All roceeds benefit the Garden. ree with Garden admission.

ugust 21 Thursday

Beyond Daisies and aylilies"

p.m., Shoenberg uditorium. Dr. Steven Still, rofessor of landscape horti- ulture at Ohio State University and author of *Manual of Herbaceous Ornamentals* presents a lecture on new and underused perennials for the home landscape. $15 members, $20 non-members. A booksigning will follow the lecture.

August 24 Sunday

Daylily Sale

9 to 8 p.m., Orthwein Floral Display Hall. The Greater St. Louis Daylily Society holds its annual sale. Free with Garden admission.

August 28 — September 4

Japanese Festival Exhibit

9 a.m. to 8 p.m. daily, Monsanto Hall. Colorful Japanese kites and spinning children's tops. Free with Garden admission.

Saturday August 30 — Monday September 1, Labor Day

23rd Annual Japanese Festival

10 a.m to 10 p.m., Saturday & Sunday. 10 a.m. to 5 p.m., Monday. See back cover for details.

Members Days

July 19 Saturday

Photographing the Garden

10 a.m., Shoenberg Auditorium. Jack Jennings has been photographing the Garden for almost 20 years, in all seasons and types of weather, and his work is featured annually in the Garden's calendar. Join him for a look at his beautiful images and a discussion of the art of photography. Seating is on a first-come, first-served basis. Free, for members only.

August 20 Wednesday

"Planting for Spring"

11 a.m., Shoenberg Auditorium. Join Shirley Dommer, MBG horticulture supervisor, for a look at landscaping with bulbs, perennials, shrubs, and trees. Attendance prize. Seating is on a first-come, first-served basis. Free, for members only.

ll proceeds from sales in the arden Gate Shop support the lissouri Botanical arden.

ease Pardon the Mess!
he Shop is a little bit opsy-turvy right now as ve prepare for some major renovations. If you can't find your favorite items, just ask one of the staff. We appreciate your patience as we get ready to show off our great new design later this summer!

EW in the Shop

- Cactus: Exotic and unusual varieties
- Bonsai: Great variety plus bonsai starters
- Prairie grasses, wildflowers, fall blooming perennials: Coming in August
- Fresh cut flowers: Available on weekends
- Citronella: Four-inch plants keep mosquitos away the natural way!

GARDEN GATE SHOP

Sweet and Sensational

"InsectNside"® Candy — Blocks of amber-colored candy, with a real cricket, larva, and sprig of grass or fern inside each one!

Cactus Candy — Made with prickly pear cactus juice

For True Chocoholics

Cocoa Mulch — Attractive mulch made from real cocoa shells darkens with time rather than fading. Two-cubic-foot bags, $8.

Great Gifts: Biospheres

It's a plant you don't have to water and a pet you don't have to feed — this living mini-world is an elegant, completely sealed ecosystem, a world where everything is recycled and nothing is wasted. Fascination guaranteed! Globes with wooden stands: 10-inch $160, 6-inch $100.

Members' Day - July 19

Photographing the Garden

Members take an additional five percent discount on baskets and *Our Wildflowers and Trees* by Margaret Harmon.

Members' Day - August 20

Planting for Spring

Additional five percent off Cocoa Mulch, MBG Compost, and the MBG "Bulbs" video, for members only.

"Moths" Exhibit

The Shop will feature John Cody's magnificent paintings in his book, notecards, and prints, plus T-shirts, totes, and gifts with moth motifs.

Japanese Festival

See special new items featuring Seiwa-en, plus traditional Japanese gifts, decorations, toys, clothing, and bonsai. A wonderful array of books includes Maggie Oster's *Reflections of Spirit: Japanese Gardens in America*, specially priced at $9.98. Also available are many how-to books on creating your own Japanese garden, crafts such as origami, and more. See the new Library of Congress facsimile crepe paper book, *The Boy who Drew Cats*, translated into English by Lafacadio Hearn.

Ready-To-Wear

Kanji hats and T-shirts feature Japanese embroidered symbols with their English translation. Come see the beautiful designs of nature motifs.

Funny Bugs from Eco-Brazil

Give these delightful toys to a child who loves bugs, or treat yourself! The foam puppet-like toys have legs that wiggle and mouths that open and close — shake the grasshopper from side to side and he sings. Factual information about each bug is included, $7 and $8 each.

Members

CLIFF WILLIS

Credit for the success of the Mother's Day Luncheon goes to the committee (above, from left): Glee Stanley, Mary Glaub, and co-chairs Kathleen Dudley and Donna Walker.

Thank You to Mother's Day Sponsors

OUR warmest appreciation to Dillards, for presenting a beautiful fashion show, and to Schnucks Markets for providing the flowers, fruits, and vegetables for the lovely decorations. Also a special thank you to Pat Scace of Studio P Floral Design, for the model's bridal bouquet.

Greenhouse Goodies — The Members' Greenhouse Sale on April 30 was a tremendous success, thanks to the hard work and planning of volunteers Isabelle Morris, co-chair, left, Holly Brigham, co-chair, right, and their hardworking assistant, Donna Walker, center. The special sale just for Garden members sold thousands of choice and unusual annuals, bedding plants, hanging baskets, and large tropical foliage plants from the Garden's greenhouses in just a few hours. Our thanks to the staff of the Horticulture Division for their help and support, and to all the members who turned out for the sale. Don't miss it next time!

September 9 Tuesday

A Party for Donors of Bricks in the Members' Entry Court

JOIN US for a lovely reception exclusively for donors of bricks in the Members' Entry Court at the William T. Kemper Center for Home Gardening. All brick donations support the Partnership Campaign. Bricks may be inscribed with the names of yourself or your loved ones.

- Engraved bricks — $300 each.
- Bronze signature bricks — $1,000 each.
  Up to 28 characters may be engraved on each brick — names only, please. We cannot accommodate dates or sentiments.
- Payment may be made by cash, check, or MasterCard/Visa.
- Order forms are available at the Membership Services Desk in the Ridgway Center, at the Kemper Center, or you may call the Development Office at (314) 577-9495.

Bricks ordered after September 1, 1997, cannot be installed in time for the party on September 9, but donors will still be welcome to join the festivities.

Purchase Your Brick Today!

Mark Your Calendar!

6th Annual "Best of Missouri" Market

CLIFF WILLIS

Saturday & Sunday, October 4 & 5, 1997
9 a.m. to 5 p.m. both days

New! Special Shopping Opportunity for Members Only Saturday, October 4, 8 a.m. to 9 a.m., complimentary coffee and donuts. Plan now so you won't miss out on two whole days of our crowd-pleasing celebration of the finest Missouri foods, specialty products, handicrafts, plants, music, exhibits, children's activities, and more! It's fun for the whole family. Watch your mail for details.

Recognized for Service

Volunteers Celebrate Anniversaries

EVERYONE who visits the Garden benefits from the talents of its dedicated volunteers. We are fortunate not only to have some 900 active volunteers, but many who have been working with us for many years — it is impossible to imagine the Garden without them. At a luncheon on April 22, Dr. Raven extended our warmest appreciation to the men and women celebrating anniversaries of service to the Garden.

Thirty Year Awards

Ellen Jones — *Members' Board, Tower Grove House Historical Committee*
Kitty Lawton — *Herb Society*
Katie McGuigan — *Herb Society*
Isabelle Morris — *Members' Board, Garden Guides, Herb Society, Boxwood Society, Tower Grove House Historical Committee, Master Gardeners, Signature Plant Collection.*
Nora Stern — *Board of Trustees, Members Board, Best of Missouri Market.*

Twenty Year Awards

Ann Case — *Members Board, Garden Guides, Master Gardeners*
Katherine Chambers — *Garden Guides, Volunteer Instructors*
Russell Goddard — *Shaw Arboretum*
Helen Kuehling — *Master Gardeners, Horticultural Answer Service, Garden Guides, Herbarium*
Sue Oertli — *Members Board, Membership Services Desk*
Susie Russell — *Shaw Arboretum*
Aurelia Voelker — *Spink Gallery, Garden Gate Shop*

Ten Year Awards:

Verla Boes, Mike Bolanovich, Jean Brumback, Robert Erickson, Sally Erickson, Tony Everding, Judith Garfinkel, Berry Guarraia, John Hogan, Lucille Keyes, Rev. James Krings, Anna Lochirco, Jeri May, Judy Mold, Marian Reisch, Maxine Schuler, Mary Sloan, Cathy Wiley, Barbara Windsor.

PHOTO BY CLIFF WILLIS

Honored for 30 years of service to the Garden (standing, from left): Nora Stern, Ellen Jones, Isabelle Morris. Seated: Katie McGuigan (left), Kitty Lawton.

Celebrating 20 years of service (seated, from left): Russ Goddard, Susie Russell, Aurelia Voelker, Sue Oertli. Standing, from left: Helen Kuehling, Ann Case. Not pictured: Katherine Chambers.

Ten Year Awards (from left): Anna Lochirco, Jeri May, Maxine Schuler, Jean Brumback, Sally Erickson, Marian Reisch, Judy Mold, Judith Garfinkel, Mike Bolanovich, Verla Boes, Lucille Keyes, Rev. Jim Krings, Robert Erickson, John Hogan. Not pictured: Tony Everding, Betty Guarraia, Mary Sloan, Cathy Wiley, Barbara Windsor.

TODAY a quarter of all prescription drugs contain at least one ingredient derived from plants. Many more have chemical structures based on compounds originally isolated from plants.

Plant-derived models, or "lead compounds," provide pharmaceutical chemists with the basic building blocks they need to develop new medicines. For example, the anti-malarial drug quinine, from the bark of Cinchona, a South American tree, provided the lead compound from which all synthetic anti-malarial drugs now in use were derived.

Finding the Building Blocks of New Medicines

CLIFF WILLIS

Dr. James Miller, center, examines specimens in the herbarium with department members Heidi Schmidt, left, and Mary Merello.

Scientists from the National Cancer Institute have discovered 13 compounds from plants collected by Garden botanists. Most are entirely new to science.

New Discoveries

Scientists at the National Cancer Institute have discovered 13 compounds from plants collected by Garden botanists, most of which are entirely new to science. Many of the compounds have shown anti-HIV activity in preliminary tests.

One example is Gentrymine B, named for the late Garden curator Dr. Alwyn H. Gentry, one of the world's leading authorities in tropical botany. The Gentrymines were isolated from a sample of Ancistrocladus korupensis, a liana originally collected by D.W. Thomas in Cameroon in 1987 and described by Thomas and Roy E. Gereau in 1993.

Natural Products Research

Since 1986, Garden botanists have collected more than 25,000 plant samples for evaluation by pharmaceutical laboratories. In 1995, in response to growing interest in natural products, the Garden established the Department of Applied Research, led by Dr. James S. Miller. The department's team of experienced researchers includes Dr. Randy Evans, Dr. Dan Harder, Nancy Hediger, Mary Merello, Heidi Schmidt, and Amy Pool.

The Garden botanists search the tropics for plants that may yield new medicines. They collect in Africa and Madagascar for the National Cancer Institute, in the U.S. and Ghana for Monsanto Company's Searle division, and in Suriname as part of one of the International Cooperative Biodiversity Groups.

The National Cancer Institute screens Garden samples for activity against HIV and cancers of the breast, ovary, prostate, lung, skin, and more. Monsanto tests samples for anti-inflammatory activity, for use as cardiovascular modulators, and for activity against HIV, central nervous system disorders, and Alzheimer's disease. The samples collected for the International Cooperative Biodiversity Group are screened for activity against cancer, HIV, and a variety of other diseases.

The discovery and development of a new drug is long and arduous — it typically takes ten or more years — but the number of biologically active compounds isolated from plants collected by the Garden is growing steadily. While the chance that any of these promising plant chemicals will itself become a medicine remains small, they may serve as lead compounds for new drugs.

A Code of Ethics

All collecting of plants for pharmaceutical evaluation is conducted according to agreements worked out in advance with the appropriate governmental agencies in the countries where samples are collected. The National Cancer Institute's "Letter of Collection," generally considered to be the model document for insuring equitable participation in bioprospecting programs, grew out of the Garden's efforts to begin a program in Madagascar to collect for the NCI. This agreement also insures that any profits arising from newly discovered medicines will be shared with the source countries, recognizing the importance of their rich biological diversity.

DNA Bank

Another service provided by the Department of Applied Research is the plant DNA bank. Three years ago Garden researchers began collecting small samples of plant material, usually young leaves, for use in studies of plant relationships at the molecular level. The collection has grown to include samples of more than 2,000 species from more than ten countries in North America, South America, Africa, and tropical Asia.

The samples, dried in silica gel, constitute a DNA bank that researchers from around the world can consult with the click of a mouse. On the Garden's Web site they can browse through the DNA bank database to find out what samples are in the bank and how to request samples on loan.

Besides providing a service to scientists who need plant DNA material for their research, the DNA bank helps to preserve the Garden's priceless collection of herbarium specimens for future

continued on page 17

Communicating With Computers

SCIENTIFIC RESEARCH has always relied on gathering and sharing huge amounts of information. Botanists working on enormous projects need to collaborate and share data with colleagues located all over the world. Managing these tasks efficiently keeps costs down and produces more rapid results.

To meet the challenge of updating botanical research methods, in 1995 the Garden created the Center for Botanical Informatics (CBI), directed by Dr. John Schnase. The Center develops new ways of combining computers and communications to support scientific research; it also creates new sources of revenue for the Garden from the information products and software tools it develops.

A Five-Year Plan

CBI has three immediate goals. Over the next five years it will provide practical support for research projects at the Garden, train students in applied bioinformatics, and introduce information products and services for commercial development and use by the global scientific community.

Results for the Real World

CBI develops innovative communication strategies and software by finding solutions for actual research projects based at the Garden, including the Flora of North America, Flora of China, and Flora Mesoamericana. "Botanical research provides an ideal laboratory for testing new technology, and our work benefits the Garden at the same time," said Dr. Schnase.

Changing the Way Science Is Done

CBI is developing ways to utilize the Internet to allow projects to proceed much faster than is possible with traditional methods. Manuscripts and other documents can be submitted, edited, discussed, and reviewed electronically, without the need to mail paper copies. This is critically important for the Flora of North America, for example, which has nearly 800 contributors who live and work throughout North America.

People and Computers

"Social informatics" studies the way people and computers interact in a work setting. Dr. Kay Tomlinson, assistant director of CBI, and Mark Spasser, bioinformatics coordinator, develop projects in this area, including a collaboration with the School of Library and Information Science at the University of Illinois at Urbana-Champaign.

In January the Garden and CBI initiated a cooperative research agreement with the Laboratory of Interactive and Cooperative Technologies of the Universidad de las Américas-Puebla, México (UDLA). The partnership will allow both institutions to explore technological solutions to current problems in managing large-scale information projects. The group in Mexico is headed by Dr. Alfredo Sánchez, an assistant professor at the Department of Computer Systems Engineering at UDLA.

Training and Technology

Education is an important part of CBI's mission. This June and July, the Center is sponsoring its first Summer Training Program in Biological Informatics. The program includes lectures in systematics, taxonomy, and biodiversity information management, presented by researchers working at the Garden and other institutions.

In addition to Dr. Sánchez, four members of the research team from UDLA are in St. Louis for the summer program. The participants are Maricarmen Amézquita, assistant researcher; César Flores, a master's level graduate student; and Cristina López and Jorge Cabrera, advanced undergraduate students.

Students in the Summer Training Program are working on specific informatics problems for the Flora of North America and Flora of China projects. Continuing research projects begun last semester at UDLA, the students are developing prototype software tools for the flora projects.

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Shown in the CBI offices (from left): Jorge Cabrera, Mark Spasser, César Flores, Dr. Kay Tomlinson, Dr. Alfredo Sánchez (seated).

New Medicines *continued from page 16*

researchers. Although it is possible to extract DNA from herbarium specimens, the DNA in the specimens is in smaller fragments and the process is destructive. All samples currently in the bank were collected by Garden scientists, but samples from other researchers are welcome.

Visit the Applied Research page on the Garden's Web site (http://www.mobot.org/mobot/research/applied_research/) to find out more about new discoveries from the Garden's bioprospecting activities and the DNA bank.

— *Kathryn J. Hurlbert, MBG Research Division*

Grandson of First Director Visits the Garden

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ALLEN W. TRELEASE, a grandson of William Trelease, the Garden's first director, visited in May as part of an Elderhostel program at the Garden. William Trelease was the first director appointed by the Board of Trustees after Henry Shaw's death in 1889. Dr. Trelease and his family lived in Tower Grove House until 1912, when he accepted the position as head of the Department of Botany at the University of Illinois. Dr. Trelease is credited with establishing scientific research as a major part of the Garden's mission. Allen Trelease's father, also named William, was born in Tower Grove House. Allen, a professor of history at the University of North Carolina from 1967 until his retirement in 1994, had visited the Garden briefly twice before.

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From left: Carl Beckers, honorary consul general of Japan emeritus and co-founder of the Japan America Society of St. Louis; Peter Raven; Mr. and Mrs. Ken Maruyama; The Honorable Tatsuo Tanaka, consul general of Japan at Kansas City, and Mrs. Tanaka; and John D. Coad, chair, Japanese Activities Committee.

Maruyama Memorial Is Dedicated

FAMILY AND FRIENDS of the late Paul Maruyama gathered at the Garden on May 24, 1997, to dedicate a Cherry Tree Allée planted in the Japanese Garden in Mr. Maruyama's memory. Mr. Maruyama was a leader in the effort to create Seiwa-en in the 1970s.

Born in Japan, Paul Maruyama came to the United States as a young man and moved to St. Louis after World War II. He established and operated an importing business for 28 years until his retirement in 1978.

Mr. Maruyama founded the Japan-America Society of St. Louis and helped to establish the St. Louis Chapter of the Japanese-American Citizens' League. He also helped to start the Sister Cities program between St. Louis and Suwa City, Japan.

"We are immeasurably grateful to Paul Maruyama for his vision and leadership in helping to create Seiwa-en," said Peter H. Raven. "The cherry trees planted in his memory are a wonderful living tribute to an exceptional man. We are very grateful to his friends and family for adding this beautiful feature to the Japanese Garden."

In Memoriam

George Tillman Hardy

GEORGE TILLMAN HARDY, a St. Louis businessman and resident of west St. Louis County, died March 11, 1997. He was 83.

Mr. Hardy was retired from the Hardy Salt Co., a family-owned salt producer and distributor founded in St. Louis in 1914. He attended St. Louis Country Day School and the Virginia Military Institute, and served in the Merchant Marine during World War II.

Friends of the Garden remembered Mr. Hardy for his portrayal of Henry Shaw in "A Living Legacy," an outdoor pageant held at the Garden in 1955. The performance featuring Mr. Hardy was presented by the Eighth District Federation of Women's Clubs, and proceeds from the event went to support the restoration of Tower Grove House.

We are very grateful to Mr. Hardy's family for making a memorial gift to the Garden. The family has requested that other contributions in memory of George Tillman Hardy be made to the Missouri Botanical Garden.

News from Tower Grove House

CLIFF WILLIS

Marie Schmitz (left) and Jane Gleason

Historical Committee Elects New Chair

IN January, Marie Schmitz became the new chair of the Tower Grove House Historical Committee. Jane Gleason, who has chaired the committee for the past several years, was named an honorary lifetime member.

The Historical Committee oversees the ongoing restoration of Tower Grove House, the country residence of Henry Shaw, as a museum of late 19th century architecture and culture, and interprets the significance of the era and the life of Mr. Shaw for the public. Other committee members are Katherine T. Corbett, Margaret Jenks, John Karel, Mary Longrais, Isabelle Morris, and Victor Porter Smith. Retiring from the committee last winter were Laverne Jaudes, Ruth Rogers, and Mary Edna Wenzel. New members joining the committee this year are Peggy McClellan, Caitlin McQuade, and Jane Newman.

Victorian Society Celebration

Tower Grove House hosted the St. Louis Chapter of the Victorian Society in America in May with a festive celebration of Queen Victoria's birthday. Members of the society gathered for luncheon at Spink Pavilion, followed by croquet and refreshments at Tower Grove House. Since 1966, the Victorian Society in America has been a leader in the appreciation and preservation of this country's 19th century heritage. For information on membership, call 776-4050. At right: B.J. Prusaczyk (left) and Cheri Merle wore Victorian costumes for the occasion.

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A New Surrey – ***The Garden has a new Cushman electric surrey, thanks to the generosity of Mr. and Mrs. Oscar J. Conrad. Twenty years ago, Mrs. Conrad gave an electric cart that was used until recently to transport guests around the grounds. Mr. and Mrs. Conrad presented the new surrey to Dr. Raven on June 4, 1997. Shown enjoying the first ride are (from left) Patricia Arnold, director of development; Peter Raven; Bud and Jane Conrad; Kevin Mattingly, facilities manager; and Mike Greenwood, president of Shipping Utilities, Inc., St. Louis suppliers for Cushman.***

Behind the Scenes

CLIFF WILLIS

Kimberlie McCue Is Named Conservation Biologist

KIMBERLIE MCCUE joined the staff of the Horticulture Division in April, with responsibility for maintaining the rare and endangered plants at the Garden as part of the Center for Plant Conservation's National Collection. She completed her Ph.D. in March at the University of Missouri-Columbia, where she studied population genetics of the rare California annual *Clarkia springvillensis*.

The Garden's conservation biologist monitors populations of rare plants in the Midwest region, maintains living specimens at the Garden, and participates in biological studies and conservation activities. The Garden is one of the few members of the Center for Plant Conservation's network of Participating Institutions that has a full-time conservation biologist on staff. Public education is also an important part of the job.

Before graduate school, Dr. McCue was a high school science teacher in Kansas City, Missouri, for six years. In 1995 she participated in the Tropical Conservation Biology course at the Organization for Tropical Studies in Costa Rica.

"Both scientific and educational endeavors are important for conservation," she says, " but one will not succeed without the other. There is tremendous support at the Garden for both parts of the conservation equation. I am excited about the opportunity to increase public awareness of the importance of plants in our lives and to help conserve rare plant species in the Midwest region."

A Fond Farewell

GARDEN staff and friends gathered in May to bid farewell to Joseph and Nesta Ewan, who left the Garden after eleven years to be with family in Louisiana. Professor and Mrs. Ewan are considered the preeminent 20th century interpreters of American natural history, and their lifetime collection of books and papers will remain at the Garden as a major scholarly resource. During their tenure at the Garden, the Ewans completed a biography of Benjamin Smith Barton; worked on Andes and Amazon, an account of naturalists in South America up to 1950; and assisted in compiling the Guide to the Ewan Papers, scheduled for publication this year. In 1994 the couple received the Garden's highest award, the Henry Shaw Medal.

The Ewans generosly shared their collections and knowledge with anyone who, as Prof. Ewan would say, had the "God-given curiosity" to want to learn. Lunchtime gatherings in the Museum Building where their collection was housed were a tradition, open to anyone who wanted to join the lively discussions.

Connie Wolf, the Garden librarian, said, "Joe and Nesta sparked an enthusiasm for knowledge in countless students for more than 60 years. We were honored to have them as mentors, teachers, and friends; their presence here made all the difference!"

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Joseph and Nesta Ewan receiving the 1994 Henry Shaw Medal.

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MICDS Community Service Day — ***Eleven eighth grade girls from Mary Institute/Country Day School visited the Garden on May 13 to perform volunteer work for their Community Service Day project. Shown here are five of the students, who helped clean up flower beds in the intensive displays (back row, from left): Students Whitney Walker and Katie Deelo; Shirley Dommer, MBG horticulture supervisor; Kristin Collins; Becky Barnett, teacher and advisor to 8th grade girls. Front row, from left: Students Katie Moro and Emily Horan.***

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"Five Dancing Geese" fountain by Robert Lee Walker in the Kemper Center demonstration gardens.

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Honoring family and friends.

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Japanese
Festival

23rd Annual Festival • Labor Day Weekend 1997

Saturday, August 30 — Monday, September 1

10 a.m. to 10 p.m., Saturday & Sunday • 10 a.m. to 5 p.m. Monday

Admission: $6 adults, $4.50 seniors, $2 members.
Free to children aged 12 and under.

Featuring Hawaii Matsuri Taiko Drummers

Special Exhibit — Japanese Kites and Tops
Sponsored by The Japan Foundation

Bonsai — Demonstrations by
Ben Oki, bonsai master

Folk Dancing — Performances by
Nippon Minyo Kenkyu-Kai from Japan

Ikebana • Juggler • Music • The Candyman
Children's Activities and Crafts • Tea Ceremonies
Bon Odori Festival Dancing • Cooking Demonstrations
Kimono Fashion Show • Raku Pottery Demonstrations
Candlelight Walks in Seiwa-en • Japanese Marketplace
Processions • Food Booths • & More!

Additional Walk-in Entrance will be open at the Shoenberg Administration Building, 2345 Tower Grove, beginning Saturday at noon.

For Festival Information Hotline, call GardenLine 24 hours a day: 577-9400, or 1-800-642-8842.

The 23rd Annual Japanese Festival is sponsored by the Missouri Botanical Garden and the Japanese Activities Committee, a coalition of organizations that includes the Japanese American Citizens' League, Japan America Society of St. Louis, Japanese Chamber of Commerce & Industry of St. Louis, St. Louis Japanese Language School for Children, St. Louis-SUWA Sister City Committee, St. Louis Japan Society, Seinen Committee, The Women's Association of the Japan America Society, and Office of the Consulate General of Japan in Kansas City.

LABOR DAY WEEKEND

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SEPTEMBER/
OCTOBER
1997

Celebrate Prairie Day at Shaw Arboretum
Saturday, September 20
Co-sponsored by Missouri Department of Conservation

VOLUME LXXXV
NUMBER FIVE

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

AAM ANNOUNCES AWARD OF ACCREDITATION

I am very proud to announce that the American Association of Museums recently renewed the accreditation of the Missouri Botanical Garden. An Award of Accreditation from AAM is a distinguished honor, signifying that an institution maintains the highest standards of quality and accountability in public service. The review process is rigorous and demanding, and accreditation signifies that an institution is among the preeminent museums in the country. On behalf of the entire Garden community, I extend our appreciation to the AAM for their recognition and for maintaining the highest professional standards for its members.

In this issue of the *Bulletin* we have some exciting announcements. The Partnership Campaign has received a splendid gift of $1.5 million from the Spencer T. and Ann W. Olin Foundation. On the next page we extend our appreciation to the Olin Foundation and invite all Garden members to join us for a "First Look" benefit at the new Research Center on the evening of September 20. That same day at Shaw Arboretum, we join the Missouri Department of Conservation in the annual celebration of Prairie Day, and on pages 10–13 we showcase some of the remarkable contributions the Department of Conservation has made to our programs and displays here at the Garden.

The first weekend in October brings the perennial favorite, the "Best of Missouri" Market, thanks once again to the hard work of Nora Stern, Ellen Dubinsky, and the entire Members' Board. We'll see you there!

– Peter H. Raven, Director

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400

24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522

You will need a touch-tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401

Information on jobs and volunteer opportunities at the Garden is available with a touch-tone phone. Listings are updated bi-weekly.

Horticultural Answer Service: 577-5143

9:00 a.m. to noon, Monday through Friday.

Master Composter Hotline: (314)577-9555

9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:
http://www.mobot.org/

Mailing Address:

Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours

9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Kemper Center for Home Gardening:
9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: open until 8 p.m., Tuesday through Saturday. Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop: 9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: 9 a.m. to 6:30 p.m. daily, Friday and Saturday open until 7 p.m. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant:
Buffet service during hours the grounds are open.

Tower Grove House: 9:45 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January. Admission is free for Garden members.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 40 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. Admission is free for Garden members. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House open 10 a.m. to 4 p.m. daily, closed on Mondays. For information call (314) 451-3512.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this Bulletin and mail to:

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On the Cover

The tallgrass prairie at Shaw Arboretum.
– Photo by Mary Ann Kressig

Editor
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CLIFF WILLIS

The entrance plaza of the Research Center is taking shape at the corner of Shaw and Vandeventer.

Olin Foundation Gives $1.5 Million to Partnership Campaign

THE SPENCER T. AND ANN W. OLIN FOUNDATION has announced a grant of $1.5 million for the Garden's capital campaign, bringing the current total to $34.4 million. The Partnership Campaign goal is $37 million. "We are very grateful to the Olin Foundation for this magnificent gift," said Dr. Peter H. Raven, director. "The Foundation has provided generous ongoing support for the Garden for many years, as Spencer Olin did personally during his lifetime, and we are delighted that the Foundation has made this splendid new contribution to the Partnership Campaign."

The new research center, the central component of the Garden's capital campaign, embodies the Olin Foundation's long-term commitment to providing support for higher education, research, and the St. Louis community. The Olin Foundation is a major benefactor of the Washington University School of Medicine, Washington University, and St. Louis Children's Hospital, as well as Cornell University in Ithaca, New York, Mr. Olin's alma mater.

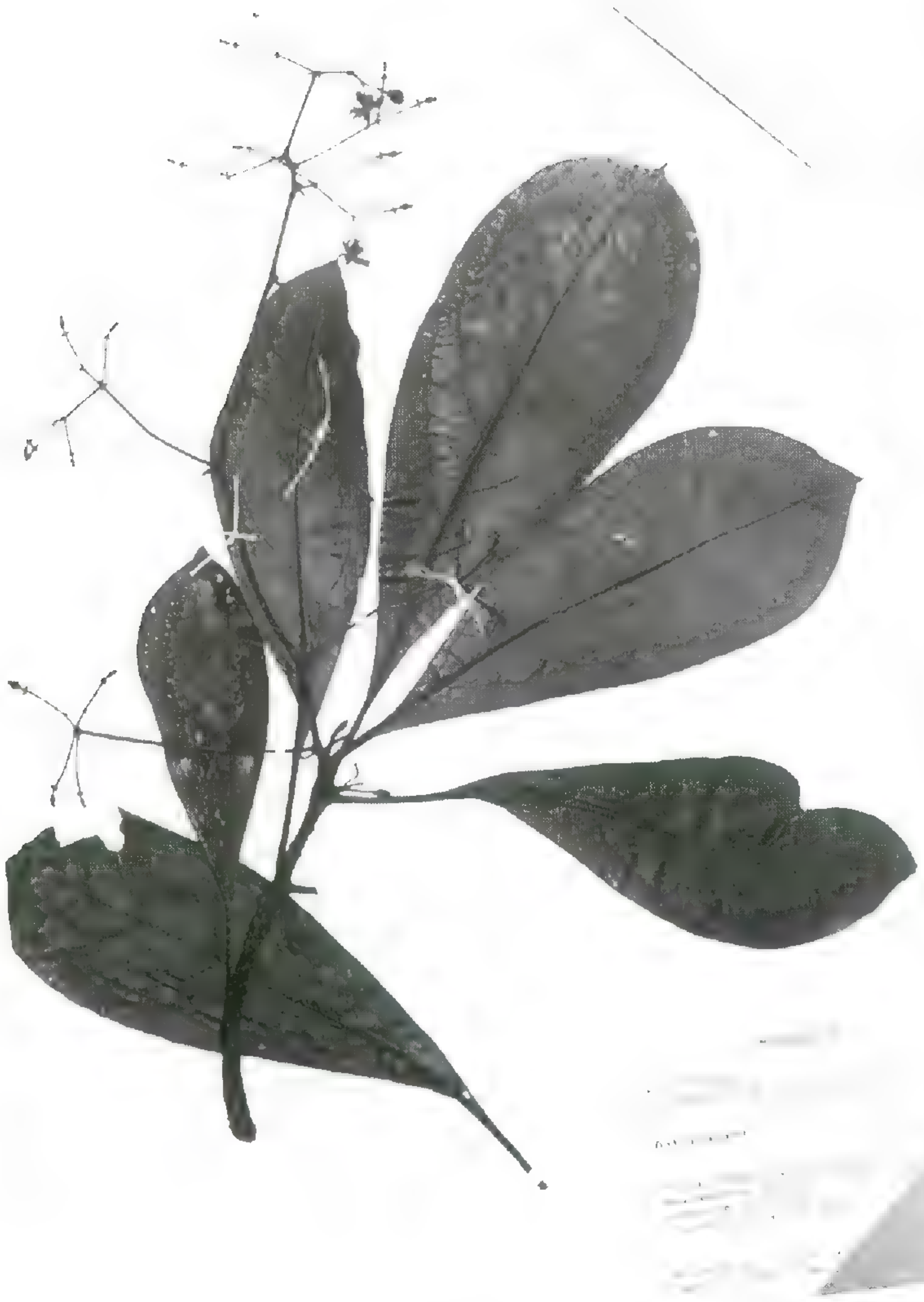
Spencer T. Olin died in 1995 at the age of 94. He was a director and officer of the Olin Corporation, which was founded by his father in 1892 as the Western Cartridge Co. in East Alton, Illinois. Mr. Olin's personal gifts to the Garden over the years reflected his abiding interest in the Garden's research program, including gifts for the Center for Plant Conservation, the library, and the Flora Mesoamericana project.

At right: The Board of Trustees met in the new Research Center on August 13.

first LOOK

Benefit: Saturday, September 20 6 to 8 p.m.

Garden members are invited to take a festive first look at the new Research Center. Cocktail reception, with music, guided tours, and lots more! Tickets are $125 per person. Call 577-9500 for reservations. Valet parking.



PHOTOS BY CLIFF WILLIS

Named for a Renowned Russian Botanist

The genus *Takhtajania*, the only member of the subfamily Takhtajaniodeae, was named in honor of the eminent Russian botanist Armen Takhtajan in 1978. Prof. Takhtajan is shown here with his wife Alice, Dr. George E. Schatz (left), and Dr. Peter H. Raven, who presented the Takhtajans with a mounted specimen of Takhtajania perrieri (far left) at a ceremony at the Garden on June 16, 1997.

Prof. Takhtajan, who celebrated his 87th birthday the week before, had always hoped the plant would be rediscovered during his lifetime. It had not been collected since it was discovered in Madagascar in 1909.

Armen Takhtajan has been called the world's most distinguished botanist of the past 50 years. A former director of the Komarov Botanical Institute in St. Petersburg, Russia, Prof. Takhtajan has devoted his career to understanding the relationships among flowering plants and their origin. In 1993 he received the Henry Shaw Medal, the Garden's highest honor.

Botanists Here Identify 'Missing Link' Tree Thought To Be Extinct

By William Allen
Post-Dispatch
Science Writer

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A DINOSAUR-ERA TREE found deep in the jungles of Madagascar and thought to be extinct has been identified at the Missouri Botanical Garden, researchers announced Thursday.

Its discovery by a collector on the small island nation off the coast of Africa raises hope that researchers can decipher one of the key questions in plant science: How did flowering plants evolve?

"This is like having a fossil come alive in your hands," said Peter Raven, director of the garden.

The small tree, *Takhtajania perrieri*, lived during the age of the dinosaurs, which ended roughly 30 million years ago. It is a member of one of the oldest families of flowering plants, known as the Winteraceae. Only a relatively few species in this family still exist around the globe, mostly on islands in the South Pacific.

The man who collected the plant, Fanja Rasoavimbahoaka, was trained and equipped in Madagascar by the botanical garden. At the time he collected the plant, in 1994, he worked for the World Wide Fund for Nature in a program arranged by the Missouri garden and conservation organizations.

Rasoavimbahoaka is a native of the region where the tree was collected.

The tree, whose flowers resemble small magnolias, has many primitive features. That's largely why scientists are so excited about this discovery.

Among the primitive features is the internal plumbing it uses to move water and minerals around. Modern plants have systems of pipelike vessels. Water in the primitive plant seeps through pores between different compartments.

Records of fossil pollen show that the plant once grew across much of Africa but over the past 25 million years became extinct on the mainland. It survived only on Madagascar, a California-size island that boasts some of the most forbidding jungles on the planet.

Madagascar is "like a museum of what Africa was once like," Raven said. But its forests have been decimated during centuries of human habitation, causing the extinction of countless species of animals and plants. The lemur is but one example of the island's endangered wildlife.

Botanical Training – Helping to Meet Environmental Challenges

For the past several years, the Missouri Botanical Garden has conducted a highly successful program to train Malagasy nationals to conduct basic botanical exploration in Madagascar, supported by the John D. and Catherine T. MacArthur Foundation and the Liz Claiborne and Art Ortenberg Foundation. This innovative training program is part of a national effort to study and protect the island nation's remaining natural habitats.

Madagascar, which lies off the southeast coast of Africa, has one of the richest and most endangered floras of any region on earth. About 75 percent of its 10,000 to 12,000 species are endemic, or unique, to the island. The Garden has maintained an active research program in Madagascar since 1972, working in close cooperation with local government and scientific agencies.

Garden researchers Dr. Porter P. Lowry and Dr. George E. Schatz developed the botanical training program, which serves as a model for Garden programs in other countries. "We offer modern research methods that have direct relevance to the country's conservation needs," Lowry said. "We also help local botanists build a strong cooperative network that has a real impact on helping Madagascar deal with its pressing environmental concerns."

Fanja Rasoavimbahoaka, who rediscovered *Takhtajania perrieri* in 1994, participated in the Garden's botanical training program in Madagascar from 1993 to 1996. He is shown here with his fellow parataxonomists in the front row, second from left. In the center is Simon Malcomber, a Garden researcher in Madagascar.

Deforestation proceeds today at a rapid rate.

A French botanist first collected specimens of the tree in 1909. Like a prehistoric oddity, the parts have resided in a Paris museum ever since. Scientists visit the museum regularly, but the specimens are inadequate for explaining key mysteries.

Over the past two decades, scientists from the St. Louis garden hunted the tree in northeastern Madagascar. But they were repeatedly turned back by the thick jungle and hordes of leeches.

This "living fossil" may help explain the evolution of flowering plants.

Enter Fanja Rasoavimbahoaka.

In the early 1990's, he was trained in a parataxonomist program run by the garden with support from the John D. and Catherine T. MacArthur Foundation and the Liz Claiborne and Art Ortenberg Foundation.

A parataxonomist is an outdoors-oriented non-scientist who gets training in the details of botanical collection and observation. He or she is given collecting and camping equipment and then sent out into the forest with instructions from a specialist.

In May 1994, Rasoavimbahoaka was working his way down a jungle trail near the village of Andapa, about 100 miles from the 1909 collection site. He collected what he thought was an interesting tree and sent it to St. Louis.

The specimen was one of 5,000 that parataxonomists in Madagascar send each year to the garden.

Last month, as researcher George Schatz worked his way through the backlog on his desk in St. Louis, he identified the plant.

Rasoavimbahoaka left the parataxonomy job last year and began studies to become a pastor. Before he left, he collected other plants new to science.

"The rediscovery demonstrates the tremendous value of training local Malagasy specialists to conduct basic botanical exploration," said Porter Lowry, who leads the garden's Madagascar work. That exploration, he said, is "part of a larger effort to study and protect the country's remaining natural habitats."

Garden researchers will soon return to the site to seek more of the trees, Raven said. They will study its flowering, fruiting and other seasonal stages.

Such information is crucial for understanding the tree's role in the early evolution of flowering plants.

"This is a missing piece of the puzzle," Raven said.

Scientists hope to cultivate the tree in protected sites. Specimens may be grown in the garden's Climatron in St. Louis. ■

MARK KEMPF

Left: The award winners gathered on the steps of Spoehrer Plaza.

Below: The top three plant donors for the Great Perennial Divide last April were honored at the luncheon. From left: Peter Raven, who presented the awards; Pat Payton, Arlie Tempel, Gwenne Hayes-Stewart, executive director of Gateway Greening, and Emil Beier.

Gateway Greening Presents:

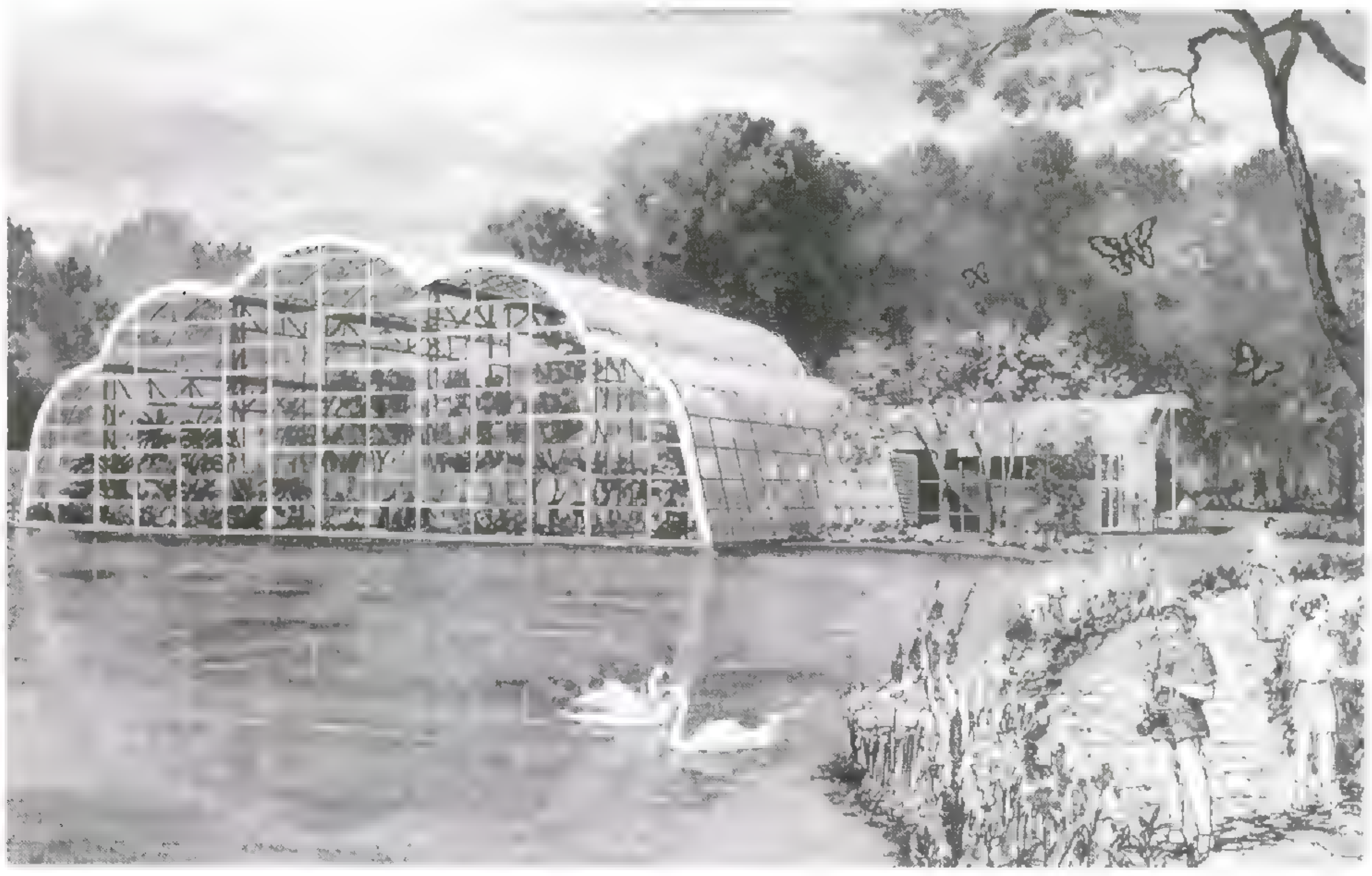
1997 Urban Garden Awards

OUTSTANDING community gardens and volunteers were honored at Gateway Greening's annual Urban Garden Awards luncheon at the Garden August 1. Thirty-eight gardens were recognized in categories for new gardens, youth gardens, large and small community gardens, ornamental and backyard gardens.

CHRISTINE FLERHOFF

MARK KEMPF

The McPherson Garden, left, was recognized as one of the best new community gardens. Last March the garden was a vacant, trash-filled lot at the north end of the Skinker–DeBaliviere neighborhood in the city's West End. A group of neighbors got together, and today the McPherson garden has more than 50 families involved, with a waiting list.



If You Like Butterflies...

VISITORS who enjoy the butterflies in the Climatron are encouraged to watch for the opening of the new Sophia M. Sachs Butterfly House and Education Center, a private non-profit organization dedicated to educating the public about butterflies and their habitats. This spectacular new facility (which is not affiliated with the Garden) will be located at Faust Park in west St. Louis County, where it is currently under construction and scheduled to open next spring. For more information about the Butterfly House and Education Center, please call (314) 361-3365, or email bflystl@aol.com.

Bill McKibben To Receive Henry Shaw Medal

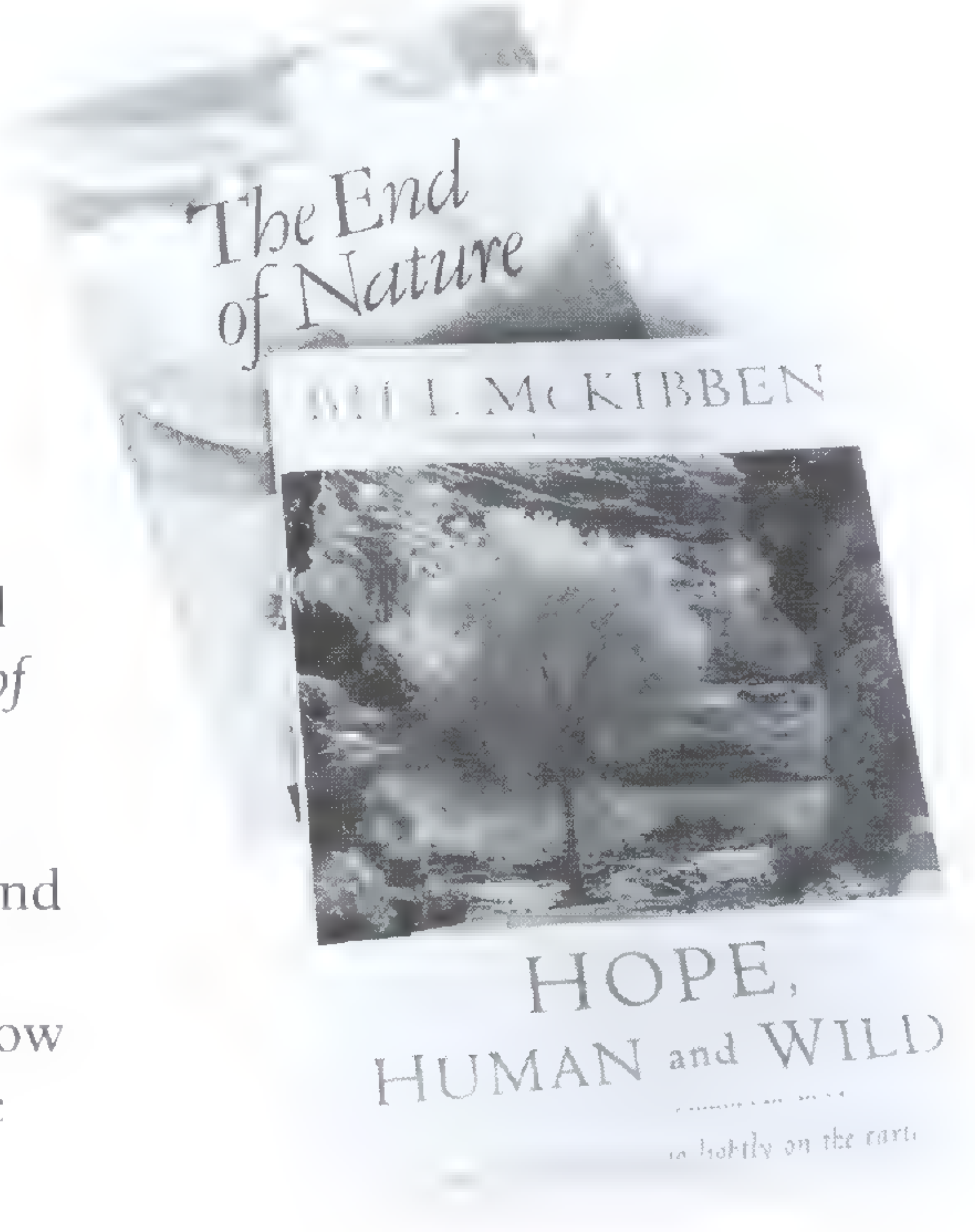
BILL McKIBBEN, best-selling author of *The End of Nature* and *Hope, Human and Wild*, will be honored with the Henry Shaw Medal at the annual Henry Shaw Dinner on Wednesday, October 15. The Henry Shaw Medal, the Garden's highest honor, was established in 1893.

McKibben's best seller *The End of Nature* was hailed as a landmark work on a par with Rachel Carson's *Silent Spring* or Jonathan Schell's *The Fate of the Earth* when it was published in 1989. In his newest book, *Hope, Human and Wild*, McKibben offers a series of lyrical, penetrating essays that profile the efforts of caring communities to preserve the wilderness and reverse environmental devastation.

In reviewing *Hope, Human and Wild*, The Los Angeles Times said, "Environmental despair is easy; environmental hope is much harder to nurture, and it hinges on exactly the sort of detailed, nuts-and-bolts specifics that McKibben has thrown himself into with such winning enthusiasm."

Bill McKibben is a former staff writer for the New Yorker, where he wrote several hundred articles for the magazine including "Talk of the Town" pieces, longer articles, and humorous fiction. He has written for dozens of national publications, from the New York Review of Books and the Atlantic Monthly to Rolling Stone. His other books include *The Age of Missing Information, The Comforting Whirlwind: God, Job, and the Scale of Creation, Look at the Land* (with Alex MacLean), and *Birch Browsings: A John Burroughs Reader* (editor). His work has been widely anthologized and has been translated into 15 languages.

A 1982 graduate of Harvard College, McKibben was a Lyndhurst Fellow and a Guggenheim Fellow. He lives in the Adirondacks with his wife, the writer Sue Halpern, and their daughter, Sophie.



1998 MBG Natural History Adventures

January 11 – 25, 1998

Patagonia: Natural History at the End of the Earth

TRIP PREVIEW:
Tuesday, September 23, 1997
7:30 p.m., Ridgway Center

Explore the spectacular scenery of glaciers, lakes, waterfalls, and peaks in the Andes of southern Argentina, Chile, and Tierra Del Fuego. See vast colonies of penguins, sea lions, elephant seals, eagles, condors, and thousands of other species of extraordinary birds and animals.

February 20 – March 2, 1998

Belize and Tikal

TRIP PREVIEW:
Tuesday, October 7, 1997
7:30 p.m., Ridgway Center

From the great barrier reef of the blue Caribbean to the misty mountains and dense rain forests that surround the ruined Mayan city of Tikal, Belize offers captivating tropical adventure. Its unspoiled environment teems with wildlife, including exotic birds, orchids, howler monkeys, and iguanas, and is one of the last places on earth to shelter the elusive jaguar.

April 9 – 16, 1998

The Sea of Cortez

TRIP PREVIEW:
Tuesday, October 21, 1997
7:30 p.m., Ridgway Center

Take a voyage on the Yorktown Clipper, a small ship whose shallow draft allows navigation close to shore. The warm blue waters and deserted islands off the coast of Baja California are home to sea lions, whales, dolphins, frigatebirds, and a spectacular array of colorful fishes.

August 7 – 16, 1998

Tambopata: Wild, Untamed Amazonia

Deep in the forests of southeastern Peru is a land the National Geographic Society calls one of the ten wildest areas on earth. Visit the Macaw Recovery Project on the Tambopata River, where giant river otters, rare primates, and thousands of macaws and parrots can be seen.

October 16 – 26, 1998

Madagascar: A Wildlife Adventure

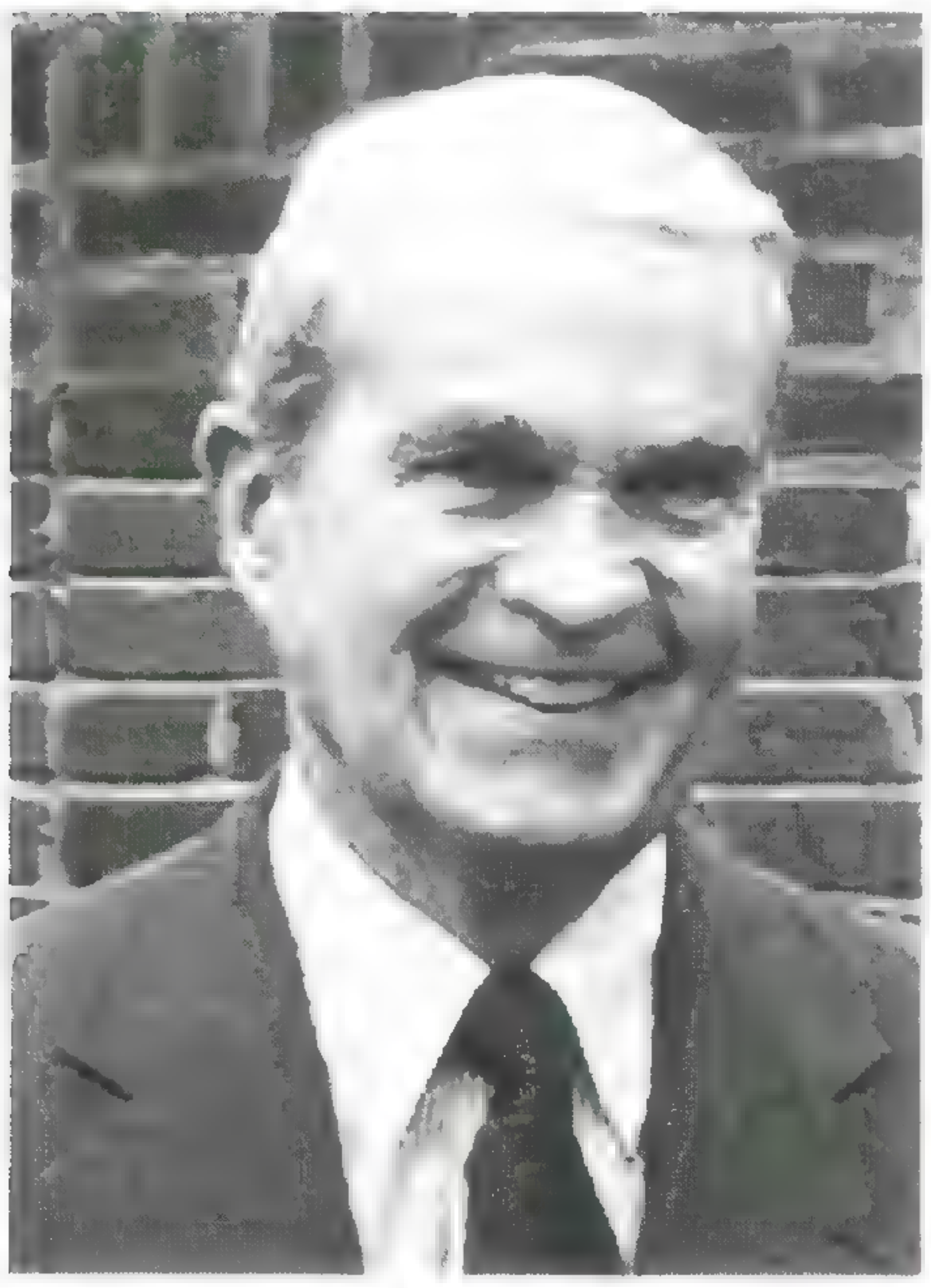
The fourth largest island in the world, located off the east coast of Africa, Madagascar is home to an extraordinary number of unique plants and animals found nowhere else on earth. The landscape ranges from spiny deserts to rain forests to beautiful beaches.

For more information on any MBG Natural History Adventure, call the Education Division at (314) 577-5144.

In Memoriam

Daniel L. Schlafly

DANIEL L. SCHLAFLY, an emeritus trustee of the Garden, died at his home in St. Louis on July 16. He was 84.


ST. LOUIS REVIEW

Mr. Schlafly first served on the Board of Trustees as an *ex officio* member from 1961 to 1963, during his first term as president of the St. Louis Board of Education. He was elected to the Garden's Board as a regular member in 1972 and was named an emeritus trustee in 1982.

Daniel Schlafly served on the St. Louis Board of Education from 1953 to 1981, including four terms as president. In 1967 he became the first lay chairman of the St. Louis University Board of Trustees, a position he held for 11 years. He served on the President's Council at the University and on the Chancellor's Council at the University of Missouri-St. Louis. He was a Knight of Malta, a papal honor, and his many distinguished awards included the St. Louis Award and the Brotherhood Award of the National Conference (formerly the National Conference of Christians and Jews). He recently received the Order of St. Louis, King, with his wife Adelaide.

Together Daniel and Adelaide Schlafly worked tirelessly to support school integration and improve educational opportunities for generations of St. Louis students. In 1981, in cooperation with the Garden, they founded the award-winning ECO-ACT program, which annually brings 60 high school juniors and seniors from public and private schools in St. Louis City and County to the Garden for a year-long program. The students investigate environmental issues and teach them to classes at elementary schools. The program encourages the students to form friendships and develop leadership skills.

Mr. and Mrs. Schlafly also worked with St. Louis cultural institutions to bring together white and African-American students from the City and the County for educational programs. These later became part of the very successful School Partnership Program of the St. Louis Public Schools. In 1990 the Schlaflys established a similar program for Archdiocese schools, "Living in a Changing World."

A native St. Louisan, Daniel Schlafly graduated from St. Louis University High School, attended St. Louis Country Day School, and graduated from Georgetown University in 1933. He was chairman of the board of his family's business, Arkansas Beverage Co.

Peter Raven said, "Dan Schlafly was active at the Garden for more than three decades and made a marvelous contribution here to our education and cultural diversity programs, as he did throughout the community. He was always a wonderful force for integrity, and we shall miss him greatly."

Summer Education at the Garden

Rain Forest Researchers

IN an exciting new course offered at the Garden last summer, classes of 15 students and teachers worked in teams to solve "The Case of the Missing Durians" and "The Lost Compound." The students investigated plants in the Climatron, the English Woodland Garden, and the Kemper Center, visited the Brookings Interpretive Center and the herbarium, and learned about biodiversity and environmental issues.

Students did research using computer databases and the Internet in the Andersen Computing Laboratory at the E. Desmond and Mary Ann Lee Education Center. Each team developed a "Rain Forest Fact Book" for a different geographical region, which will be used in a future Garden science curriculum publication.

CLIFF WILLIS

Above: Students used the Internet to investigate research topics. The computer lab was made possible by support from Arthur Andersen LLP and Andersen Consulting LLP.

CLIFF WILLIS

Teams of students visited the Climatron, Brookings Center, and other Garden facilities. At right: Celeste Prussia of the Education Division works with students in the herbarium.

Volunteer Evening

CLIFF WILLIS

With Peter Raven, center, are award winners (from left): Herman Easterly, Louis Stark, Charley Walter, Pat Thomann, and Alyce Hildebrandt. Not pictured: Bea Mosher.

CLIFF WILLIS

Members of the St. Louis Herb Society accepting the Organization Award.

ON May 29, 1997, the Garden paid tribute to all its volunteers and honored several individuals with special awards for outstanding achievement. Making the presentations, Dr. Peter H. Raven said, "The Garden is committed to service in research, education, and the beautiful displays on our grounds. It is a tremendous undertaking that requires a strong partnership with our volunteers. I am proud to recognize all of you who contribute so much of your time, energy, skills, and enthusiasm to help us serve the community." The men and women below were singled out for special recognition:

Special Achievement Award:

Pat Thomann, Horticulture. Pat is president of the Henry Shaw Cactus Society. Since the closing of the Desert House, Pat and the society members have helped to care for the Garden's valuable collection of desert plants, many of which are boarded in their homes. They also come in weekly to work with plants stored in the greenhouse, and Pat puts in many extra hours.

Extra Service Hours Award:

Louis Stark, Horticulture. Louis is one of the most efficient and productive workers on the grounds, where he helps promote a strong team effort.

Career Service Award:

Charley Walter, Horticulture Answer Service. Charley is a 21-year veteran of the Answer Service, where he is renowned for his gardening skills and encyclopedic knowledge.

Commitment Award:

Herman Easterly, Horticulture. Herman volunteers weekly for both the Horticulture Answer Service and the Kemper Center Plant Doctor desk. He has also served on the Master Gardener Steering Committee and participated in the plant sales, Garden Expo, Earth Day, and other events.

Organization Award:

The St. Louis Herb Society. For 54 years, the members have devoted time and energy to sharing their vast knowledge of herbs with the community. They popularized growing herbs in this part of the country with their superb books, cookbooks, classes, and herb products. Every Tuesday morning the society members work in the Herb Garden behind Tower Grove House.

Volunteer Emeritus Awards

Bea Mosher – Bea assisted the Horticulture Division in maintaining the beauty of the English Woodland Garden for 15 years.

Alyce Hildebrandt – Alyce served as a volunteer instructor in the Education Division for 11 years, where she helped develop classes and raised the conservation consciousness of her students and fellow teachers.

Garden's Annual Report and Video Receive Awards

The Missouri Botanical Garden's 1996 Annual Report received an Award of Excellence in the Community Service Public Relations Council (CSPRC) 1997 Publications/Video Contest for Excellence in Not-for-Profit Communications. Copies of the Annual Report are available from the Development Office, Missouri Botanical Garden, (314) 577-5120.

Shaw Arboretum's video of the Whitmire Wildflower Garden won the Award of Honorable Mention in the CSPRC Competition. Scott Woodbury, horticulturist at Shaw Arboretum, Mary Ann Kressig, photographer, and Dan Randant, producer for Wildstone Media, were recognized for their work on the project. The video is available in the Garden Gate Shop.

Home Gardening

GARDENING WITH NATIVE PLANTS

The Garden and the Missouri Department of Conservation work together to increase awareness about saving native organisms and their habitats.

TODAY all of us are looking for ways to help conserve natural resources and protect our environment. Hand in hand with that concern is a growing enthusiasm for naturalistic landscapes using hardy native perennials. Create a beautiful "pocket prairie" or make a haven for butterflies, and you will discover that you're also saving much of the time and resources required to maintain more traditional gardens.

It used to be that a yard full of native grasses and wildflowers ran the risk of being labelled a "weed patch" by the neighbors. But fortunately fashions change, and "naturescaping" with native plants doesn't have to look weedy. Just visit the Kemper Center and feast your eyes on the lush colors and textures of the native plant displays on the sunny knoll at the south end of the demonstration gardens.

Created with support and assistance from the Missouri Department of Conservation, the native plant area is a showcase for the incredible variety of ornamental species native to Missouri.

What Is a "Native" Plant?

Many common plants that thrive here are referred to as "native" when in fact they were introduced to our area by European settlers. Dandelions, Queen Anne's lace, and chicory are just of few of these. A true native is a species that originated in a given region.

Conserving Resources

Native species make excellent landscape plants because they are hardy in our climate and are already adapted to local soil conditions. Consequently they require little or no fertilizer and relatively little maintenance, which saves energy, including your own.

They also conserve water. Many Missouri natives are extremely drought-tolerant and need far less watering than exotic species. They are also less susceptible to insects and diseases, reducing the need for pesticides that can harm butterflies and other beneficial insects.

Preserving our Natural Heritage

A garden of native plants preserves habitat for many birds, insects, and mammals that are becoming as rare as the plants and the natural environments that feed and shelter them. Together with the Missouri Department of Conservation, the Garden is working to increase public awareness about saving native organisms and their habitats. Joint projects include Prairie Day, which the Conservation Department is sponsoring at Shaw Arboretum on September 20 (see box, page 11), habitat restorations and the "People on the Land" exhibit at the Arboretum, the Flora of Missouri project (see page 13), the Neighborhood Greening Program, and educational projects with the Center for Plant Conservation. This year the Department of Conservation and Monsanto Fund co-sponsored the spectacular "Witness" exhibit on endangered species at the Garden, and MDOC staff collaborated on the story signs for the Kemper Center native plant area.

Planning a Native Garden

Learn to recognize the native plants that may already be growing in your garden, such as phlox, black-eyed Susan, butterfly weed, coreopsis, bee balm, deciduous holly, and viburnum. Information is available at the Kemper Center on the best natives for sunny, shady, moist, or dry locations. As with any garden plan, you will also want to consider color, blooming times, and height when choosing species to use in your landscape.

Protecting Wild Populations

The demand for natives has led some people to collect plants from the wild for use or sale. This can be extremely destructive to plant populations and contributes to the threat of extinction for many species, including many cacti, orchids, insectivorous, and medicinal plants.

Be careful to purchase nursery-propagated plants only. Check labels and catalogs for information on the source of plants, and ask questions of the vendors. Beware of ambiguous terms such as "nursery-grown," which could mean that the plant was dug from the wild and merely transplanted at the nursery. Price is a good indicator. Some plants, such as trilliums that take years to grow from seed, will cost far less when taken from the wild.

The Kemper Center can advise you about the endangered status of species and refer you to a number of reputable local nurseries that specialize in native plants. While plants may be purchased by mail order, it is best to buy natives from a local source whenever possible. The plants are more likely to be genetically adapted to your region's climate and environmental conditions.

Evaluate the Site

Unless you are planning a shade garden, be sure your site receives six to eight hours of direct sunlight each day. Many native wildflowers are well suited to a hot location, especially on a southern slope. Good drainage is crucial.

The soil should be relatively lean, as many of these plants grow naturally in areas where the soil is not high in organic matter. In fact, if your soil is too rich, native plants will grow too tall and tend to topple over.

Site Preparation

Weed control is the number one challenge in establishing any new garden area, so start well ahead of planting time. Weed seed is everywhere in the soil, lying dormant and just waiting for the right conditions to germinate. Bringing seed closer to the surface by tilling is often all it takes to cause a weed explosion.

The best approach is to water the site well for several weeks in advance, then eliminate the existing growth with an herbicide such as Roundup. Wait a week, then resume watering until weeds reappear and apply herbicide again. The dead vegetation will provide a mulch that will help reduce new weed growth. Try to

Celebrate Prairie Day • Saturday, September 20, 1997

10 a.m. to 4 p.m. at Shaw Arboretum.

Co-sponsored with the Missouri Department of Conservation. This annual celebration, held at the Arboretum for the second straight year, includes tours of the 85-acre tallgrass prairie, games, exhibits, food, music, and lots more. Shuttles will be available from the parking lot. Admission is free to all.

- **Prairie Tours**
- **Live Buffalo**
- **Musicians**
- **Storytellers**
- **Flint Knapper**
- **Cordage Maker**
- **Spinners & Weavers**
- **Natural Dyes Demonstration**
- **Games for Children**
- **Insects from the Saint Louis Zoo**
- **Live Reptiles from the Herpetological Society**
- **Birds of Prey from the World Bird Sanctuary**
- **Artifacts from the Museum at the Jefferson National Expansion Memorial**
- **Osage Missouri Indian Lodge**
- **Native American Living History Interpreter**
- **Prairie Seed for Sale from Shaw Arboretum and Local Wildflower Nurseries**
- **Buffalo Burgers, Grilled Corn, Hamburgers, Hot Dogs, Bratwurst, French Fries, and more!**

avoid tilling altogether unless you plan to use seed; in that case a third application of herbicide may be necessary.

Transplanting or Seeding

Transplanting potted plants gives fastest results, and you can plant right through your mulch. You also control exactly where plants will appear. Seed is a little less expensive, and creates the most natural "wild" look.

Wait until late fall to seed, allowing as much time as possible for weed control measures to work. A portion of the seed laid down in late fall will germinate in spring, because many wildflowers require cold winter temperatures to trigger germination.

Weed Control

Weed control for seeded gardens is definitely a project during the first year. If weeds get out of hand, mow the area when plants are about a foot tall. Mowing will eliminate weed flowers and keep their seed from spreading. It also eliminates the wildflower show, of course, but mowing will encourage the wildflowers to produce an extensive root system during the first season and increase flower production the following year.

If you are seeding a large area, over 2,500 square feet, broadcast the seed. You will need about an ounce of seed for each 250 square feet. For smaller sites, you might try applying seed in curved rows spaced about three feet apart. Anything that comes up between the rows is a weed for certain. The rows will disappear as the wildflowers fill in.

Choosing Seed

Beware of canned, prepackaged wildflower mixes. They are often laced with annual wildflowers and some perennials. The annuals give more instant flowers, but may take over the site and choke out the perennials. Then the site becomes dependent on the annuals setting seed each year, and weed control becomes more difficult.

For better results, get a custom mix of seed from a local supplier. This allows you to coordinate blooming times and select the most attractive species suited to the scale of your site.

Types of Landscapes

The Kemper Center native plant area encompasses four demonstration gardens: the Stanley and Lucy Lopata Prairie Garden, the Suzanne Staff Wright Rock Garden, the Christopher Biraben Butterfly Meadow, and the Martha Love Symington Missouri Native Shade Garden. Each features a different way to use Missouri natives in the landscape.

The Prairie Garden

A prairie is essentially a grassland with forbs, or showy flowering natives, mixed in with the grasses. Scott Woodbury, horticulturist at Shaw Arboretum, laid out the 5000-foot prairie demonstration garden at the Kemper Center in two plots separated by a wide curving path sown with path rush, Juncus tenuis, a tough, low-growing grass that withstands a lot of traffic. The east plot was seeded with a mixture of 40 species, including 30 forbs, six sedges, and four grasses for a naturalistic prairie look. The west plot was planted with transplants for a more structured design. To keep the plants at a manageable height, a very poor clay soil was used. When you visit the display, keep an eye out for the life-size bronze sculpture of a friendly praire dog by Robert Lee Walker.

The Rock Garden

June Hutson, the Garden horticulturist who formerly supervised the ornamental rock garden beside the Climatron, laid out the native rock garden display using Missouri limestone and all Missouri native species, with the exception of some conifers that add winter interest. June emphasized flowering perennials that naturally grow in the thin, exposed soils of glades, meadows, and river bluffs. The limestone boulders help

continued on page 12

Some Recommended Native Perennials

Ask for complete listings of recommended Missouri natives when you visit the Kemper Center for Home Gardening.

Grasses	
Little bluestem	*Schizachyrium scoparium*
Prairie dropseed	*Sporobolus heterolepsis*
Side-oats grama	*Bouteloua curtipendula*
Prairie Forbs	
American feverfew	*Parthenium integrifolium*
Compass plant	*Silphium laciniatum*
Prairie gayfeather	*Liatris pychostachya*
Rattlesnake-master	*Eryngium yuccifolium*
Western sunflower	*Helianthus occidentalis*
Rock Garden Wildflowers	
Beard-tongue	*Penstemon cobaea*
Missouri evening primrose	*Oenothera macrocarpa*
Pale purple coneflower	*Echinacea pallida*
Purple poppy mallow	*Callirhoe involucrata*
Tickseed coreopsis	*Coreopsis lanceolata*
Butterfly Plants — Nectar	
New England aster	*Aster novae-angliae*
Butterfly weed	*Asclepias tuberosa*
Bee balm, wild bergamot	*Monarda fistulosa*
Rose verbena	*Verbena canadensis*
Joe Pye weed	*Eupatorium purpurem*
Butterfly Plants — Larval food	
Milkweeds	*Asclepias tuberosa, A. incarnata*
Sedges	*Carex* sp.
Switchgrasses	*Panicum* sp.
Trees	
Blue ash	*Fraxinus quadrangulata*
Red oak	*Quercus rubra*
Red maple	*Acer rubrum*
Serviceberry	*Amelanchier arborea*
Shade-loving Wildflowers	
Celandine poppy	*Stylophorum diphyllum*
Columbine	*Aquilegia canadensis*
Horsemint	*Monarda bradburiana*
Spiderwort	*Tradescantia virginiana*
Wild sweet William	*Phlox divaricata*

Gardening with Native Plants

continued from page <None>

to hold moisture in the sandy soil, allowing the display to use a wider range of species than might naturally appear on a hot, exposed site.

The rock garden was carefully planned to have colorful blooms throughout the growing season. Plants were placed in groups to create a pleasing arrangement of color, shapes, and textures among the rocks, with some taller stems and decidous shrubs for vertical interest.

The Butterfly Garden

Butterflies seem to prefer blooms in massed plantings. An ideal site is sheltered from the wind, with a secluded source of still water nearby and rocks where the insects can sun themselves. At the hilltop site of the Kemper Center butterfly meadow, trees were planted to screen the display on the west. Taller natives were planted toward the center of the meadow, with lower growing species around the perimeter. Butterflies require food plants for their larval stages as well as flowering plants throughout the blooming season. Mornings and late afternoons seem to be the best times to see butterflies in the meadow.

According to Larry Enkoji, the horticulturist who maintains the native displays, once the plants are established, weeds are less of a problem, especially where plantings are dense as in the prairie garden. Some natives tend to become invasive and will need to be cut back occasionally. Taller plants may need to be staked or tied.

The Native Shade Garden

On the hillside to the west of the butterfly meadow is an attractive shade garden composed entirely of Missouri natives, including ornamental trees and an understory of wildflowers along winding paths. When the trees mature and establish a shady canopy, some of the more sun-loving plants currently on display will be replaced with more shade-tolerant species. ■

CLIFF WILLIS

The native plant area at the Kemper Center. The Birch Mahaffey Carpenter Butterfly Pavilion in the background overlooks the display.

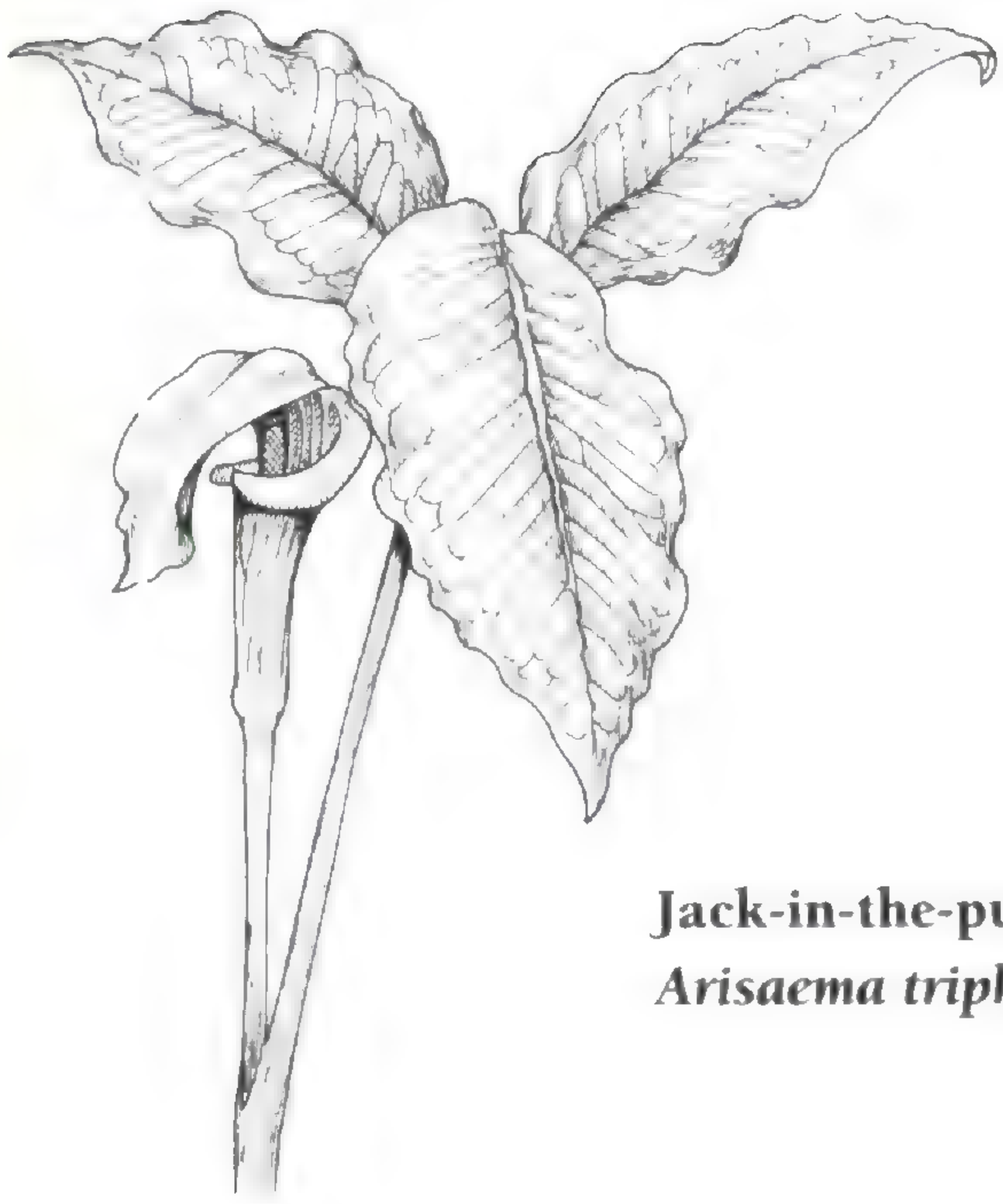
Channel 2 Films Show at the Kemper Center

This summer, earlybirds were treated to a gardening show live from the Kemper Center for Home Gardening every Wednesday morning in July at 7:25 and 7:50 a.m. Each week the show featured a different topic presented by members of the Garden staff. Shown above filming in the demonstration gardens is Walt Behrendt, a 25- year veteran of the Horticulture Division and an expert on vegetable gardening.

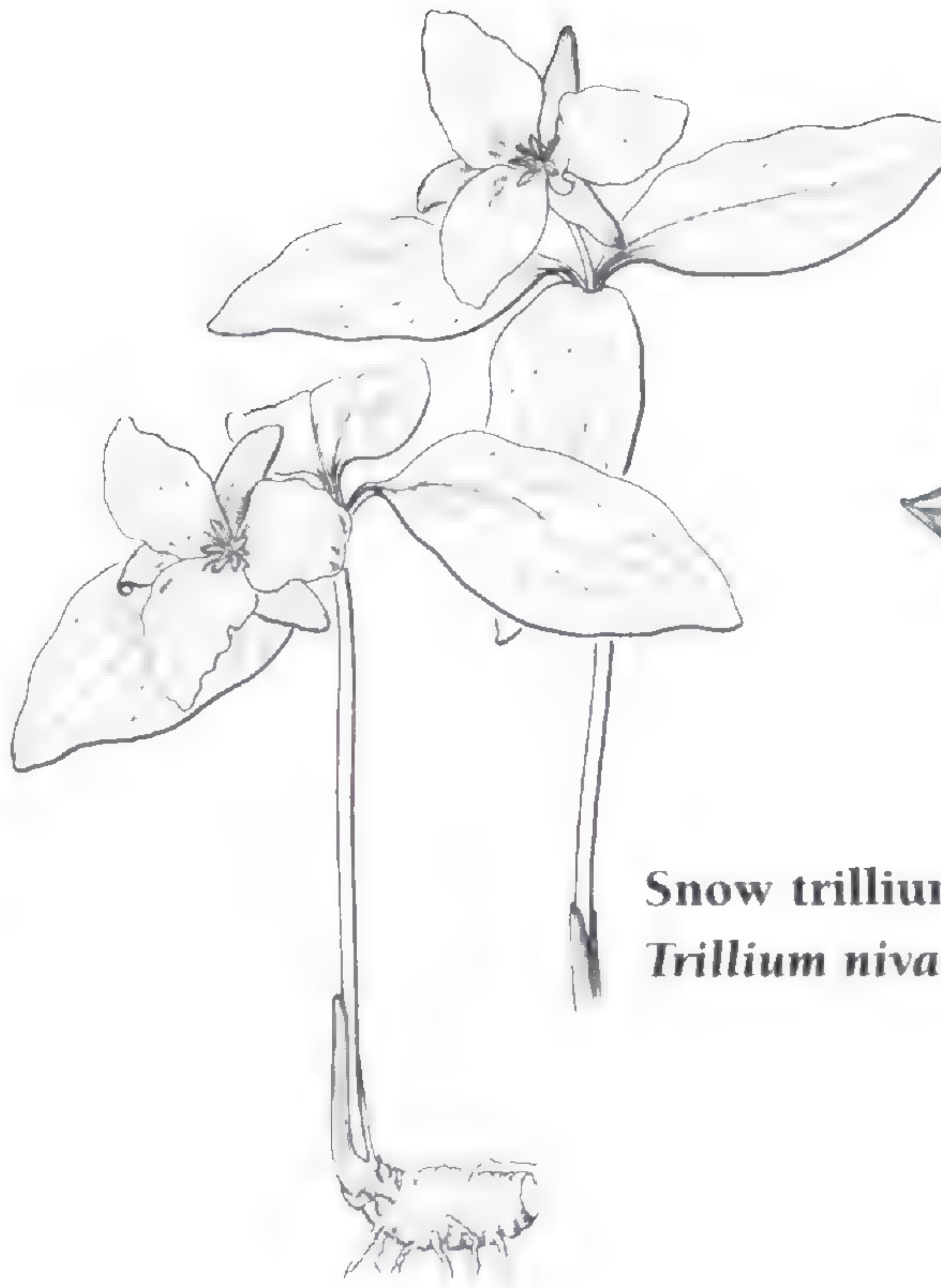
A Directory of Regional Plant Societies is published in the January and July issues of the *Bulletin*. For information, please call the Kemper Center for Home Gardening, (314) 577-9440.

Don't forget to call HortLine, (314) 776-5522 for answers to gardening questions 24 hours a day. For an up-to-date listing of "Plants in Bloom" at the Garden, press 3 when you call HortLine.

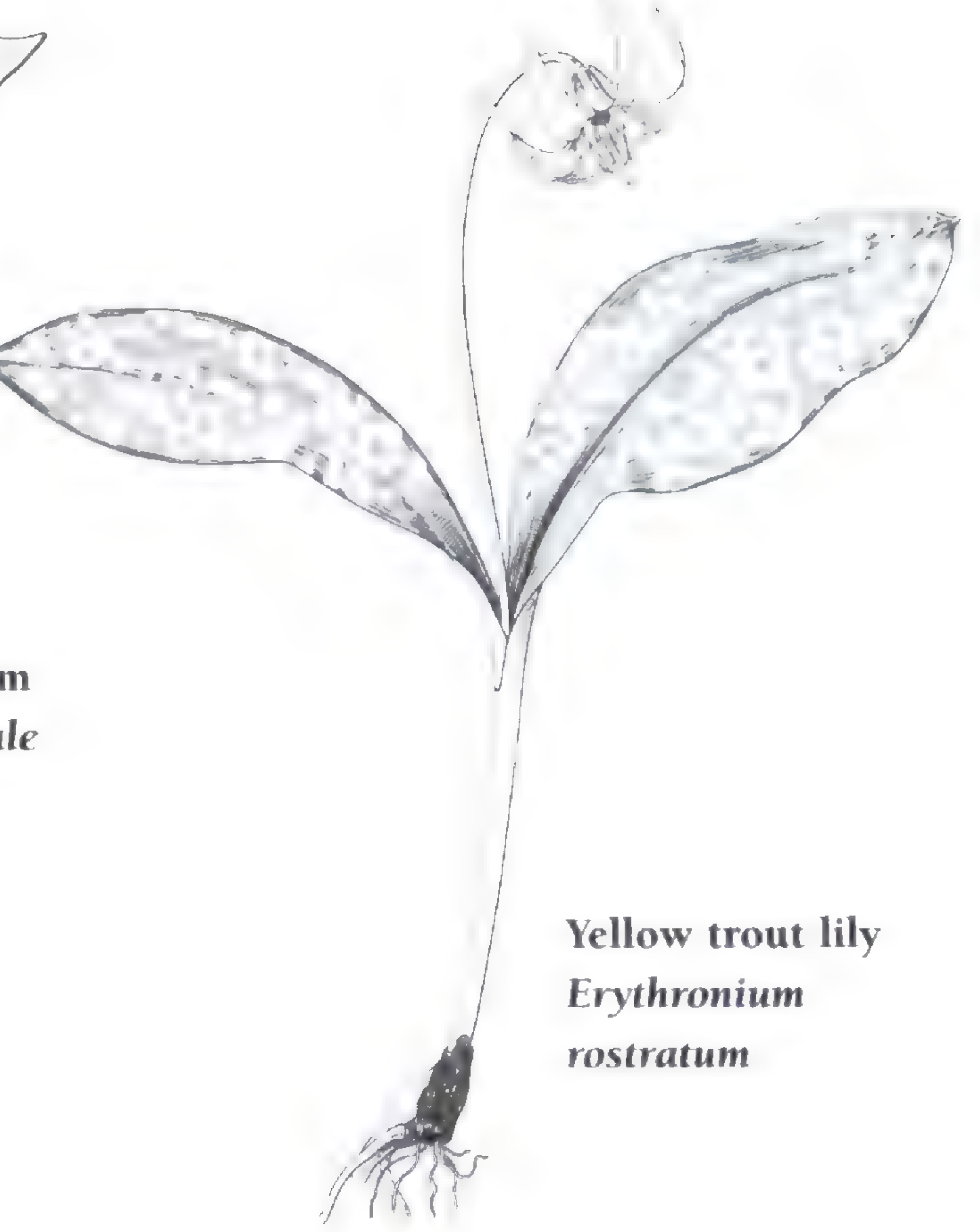
THREE ILLUSTRATIONS AT RIGHT BY JOHN MANNING



Jack-in-the-pulpit
Arisaema triphyllum



Snow trillium
Trillium nivale



Yellow trout lily
Erythronium rostratum

UPDATE –
Flora of Missouri

by George Yatskievych, Ph.D.
Curator of Missouri Plants

AN IMPORTANT PART of the Garden's research program is a commitment to study and compile information on the plant life of Missouri. The Missouri Department of Conservation's mission involves managing the state's biological resources. In 1987, these two conservation leaders began a joint project to revise the state's floristic manual, Julian Steyermark's Flora of Missouri, first published in 1963.

What was first envisioned as a fairly quick, minor updating soon turned into a thorough revision of the whole book. Although Missouri's flora was thought to be relatively well known, exploration and collecting by a large number of amateur and professional botanists during the past 35 years has increased the total number of species from 2438 to an amazing 2763, or about 10 new finds per year.

How do you go about improving on a classic? In the case of Dr. Steyermark's book, we began by asking users what they liked and what they would prefer to see expanded or improved. We also decided to use computers to store the information and make future revisions easier.

A dozen skilled artists have completed 586 entirely new plant illustrations, which have been scanned onto CD-ROMS and eventually will be available on the World Wide Web or other computer-based applications. In the new volume, maps showing statewide distribution of plant species will be based on precise information in the database, which will be updated regularly.

The diagnostic keys for plant identification are being revised extensively to take advantage of advances in our knowledge. In addition, new paragraphs describing the appearance of each species are being completed, based on intensive research.

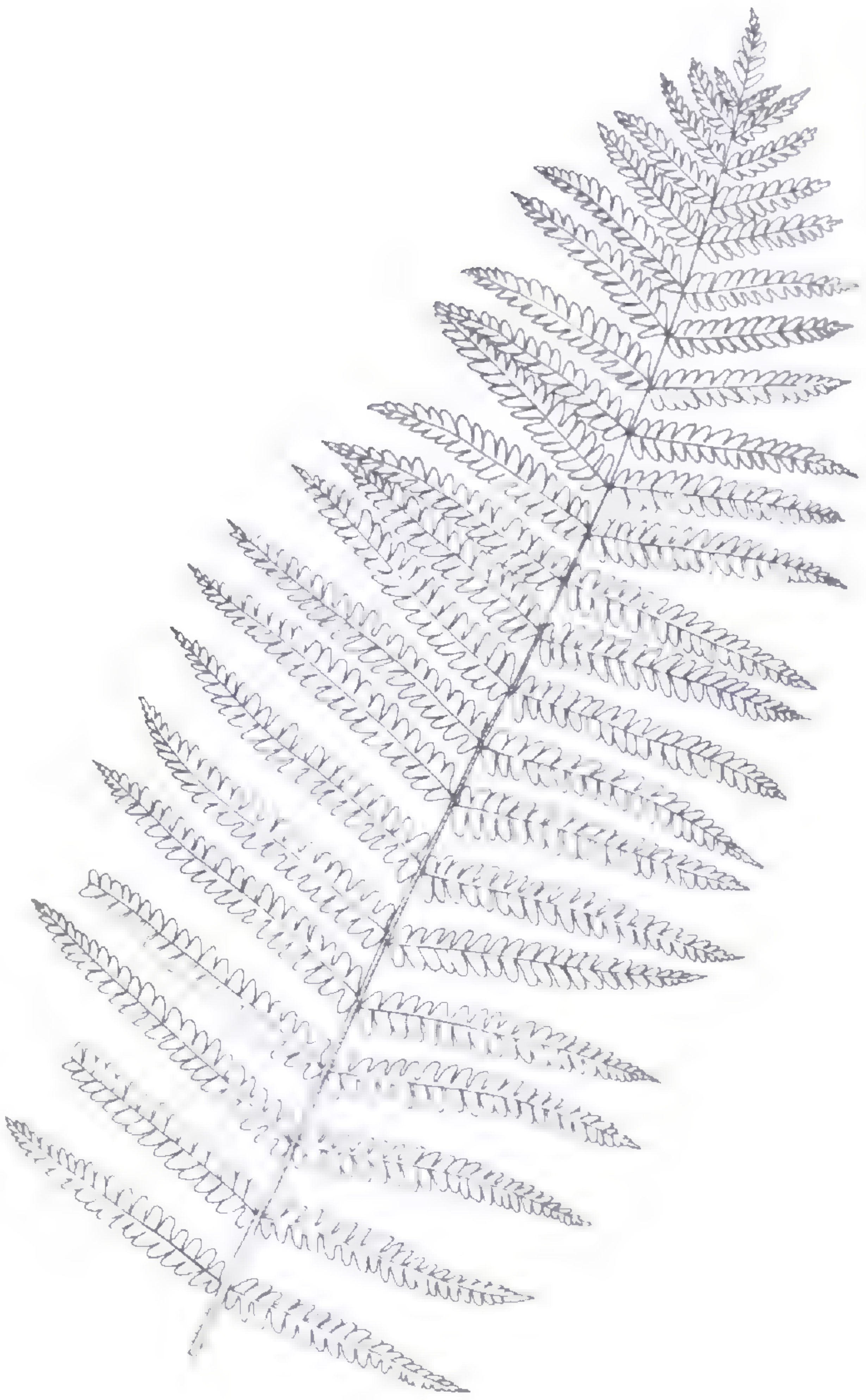
The text on habitats and distribution is also being updated, and discussions of taxonomic problems and other aspects of species' biology and uses are being expanded. The introductory chapters on how to use the book, the history of Missouri botany, and the flora and vegetation are all being rewritten and expanded.

With all this new information, the revised Flora of Missouri will have to appear in two volumes. The first is scheduled for publication next summer. It will contain the introductory chapters and the treatments of ferns, fern allies, conifers, and the first portion of the flowering plants, the "monocots." The second volume, which will include the "dicots," will require another two or three years of preparation.

It is our hope that the new edition will function as an encyclopedia of knowledge on Missouri's flora. With the help of computers, we will continue accumulating knowledge of plants growing in Missouri, even after the new edition has been published.

George Yatskievych will present a Curator's Talk, "Flora of Missouri," on Thursday, November 13, 1997, at 7 p.m. in Shoenberg Auditorium. Tickets are available at the door, $5 members, $6 non-members.

PHYLLIS BICK



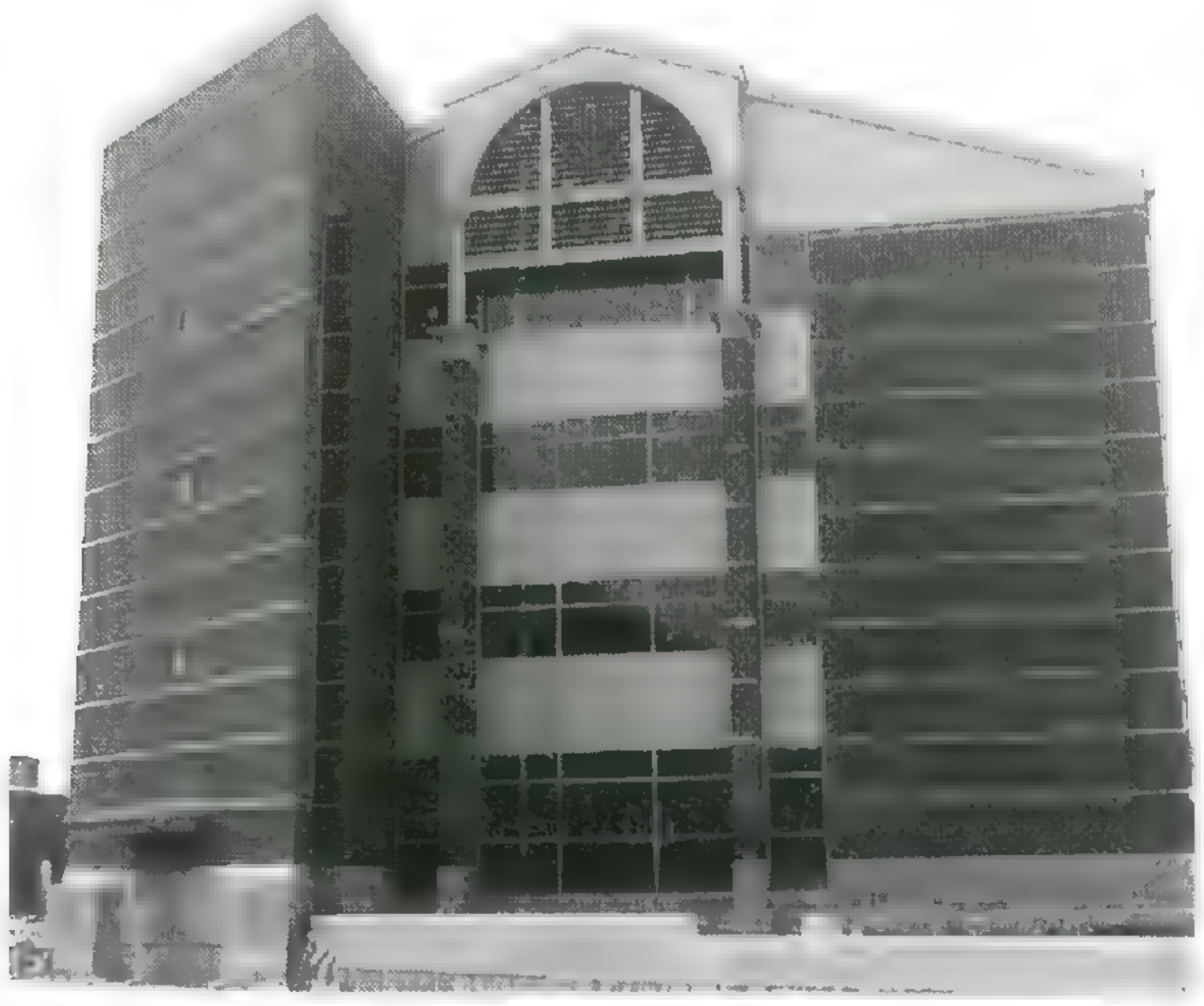
Cinnamon fern leaf
Osmunda cinnamomea

Calendar

September 20 Saturday

Prairie Day

10 a.m. to 4 p.m., Shaw Arboretum. Co-sponsored with the Missouri Department of Conservation. Celebrate our natural heritage with tours of the tallgrass prairie, music, crafts demonstrations, food, and more! Free admission. See page 11.



CLIFF WILLIS

September 20 Saturday

"First Look" Benefit

6 to 8 p.m. in the new Research Center, Shaw & Vandeventer. Cocktail reception, live music, valet parking, $125 per person. For the benefit of Missouri Botanical Garden. Call (314) 577-9500.

Tuesdays, Wednesdays, and Thursdays

Tower Grove House Luncheons

Noon, three days each week. The Tower Grove House Auxiliary serves luncheon in the Tea Room. See listings at right for dates featuring the special fall luncheon menu. Reservations are required; please call 48 hours in advance, 577-5150.

Wednesdays & Saturdays *Garden Opens at 7 a.m.*

Outdoor grounds open at 7 a.m., greenhouses open at 9 a.m. Breakfast is available in the Gardenview Restaurant between 7 a.m. and 10:30 a.m.

Every Day *Free Walking Tours*

1 p.m. daily. Meet the Garden Guides at the ticket counter, rain or shine, for a tour of the grounds. Free with Garden admission. For groups of fifteen or more, reservations are required, with five weeks advance notice. Call (314) 577-5140 to arrange a tour for your group.

September 1 – 14

Wildflowers Exhibit

Bascom Manor House at Shaw Arboretum. 10 a.m. to 4 p.m. Tuesday through Sunday, closed Mondays. Watercolor paintings by wildflower artist Grette Herrick.

September 6 – 7
Saturday – Sunday

Gardeners of America Show

Noon to 5 p.m. Saturday, 9 a.m. to 5 p.m. Sunday, Orthwein Floral Display Hall. Free with Garden admission.

September 11 Thursday

Walter Cleveland Exhibit

9 a.m. to 5 p.m. daily through November 20, Monsanto Hall. Color etchings and aquatints of botanical subjects by artist Walter Cleveland. Free with Garden admission.

September 14 Sunday

Daylily Society Sale

9 a.m. to 5 p.m., Orthwein Floral Display Hall. Proceeds benefit the Garden. Free with Garden admission.

September 16 - 18
Tuesday – Thursday

Special Fall Luncheons

Celebrate autumn with a special menu in the Tower Grove House Tea Room. Call 577-5150 for reservations.

September 18 - 21
Thursday – Sunday

Annual Fall Bulb Sale

In the Garden Gate Shop and Orthwein Floral Display Hall. See page 15.

September 27 & 28
Saturday & Sunday

Greater St. Louis Dahlia Society Show

Noon to 5 p.m. Saturday, 9 a.m. to 5 p.m. Sunday, Orthwein Floral Display Hall

October 2 Thursday

"In the Dust of Kilimanjaro"

7 p.m., Shoenberg Auditorium. Dr. David Western, director of the Kenya Wildlife Service, presents a riveting look at the history of wildlife conservation in his native Africa. His new book, *In the Dust of Kilimanjaro*, has been published to coincide with the 50th anniversary of Kenya's National Parks. Booksigning will follow the lecture. Free admission.

October 4 & 5
Saturday & Sunday

Sixth Annual "Best of Missouri" Market

9 a.m. to 5 p.m. daily. Special members' preview: Saturday, 8 to 9 a.m. See page 16.

October 12 Sunday

Tea & Cookies

1 p.m. to 3 p.m., in the Tower Grove House Tea Room. Please call 577-5150 for reservations.

October 14 & 15
Tuesday & Wednesday

Special Fall Luncheons

Tower Grove House Tea Room. Call 577-5150 for reservations.

October 23 Thursday

"Medicinal Miracles of the Future"

7 p.m., Shoenberg Auditorium. Dr. James Miller, head of MBG's Department of Applied Research, discusses the the Garden's groundbreaking work collecting plants for pharmaceutical research and highlights some new discoveries that may change the face of modern medicine. Tickets are available at the door: $5 members. $6 non-members

ctober 25 & 26
aturday & Sunday

Gesneriad Society Show & Sale

a.m. to 5 p.m. daily, Orthwein Floral Display Hall. ateway West Gesneriad ociety exhibits the popular frican violet family. Regular arden admission.

ctober 26 Sunday

ily Society Bulb Sale

a.m. to 5 p.m., Ridgway enter. The Mid-America egional Lily Society holds its nnual bulb sale. Regular arden admission.

ll proceeds from sales in the arden Gate Shop support the lissouri Botanical Garden.

ustomer Service

When you make a purchase n the Garden Gate Shop, you vill be asked for your name, ddress, telephone number, nonth and day of your birthlay, and whether or not you re a Garden member. The nformation will be used to ielp serve customers better, nd is strictly for the Garden Gate Shop's use only. We hope ou will participate and enjoy he extra services the Shop an offer.

lembers' Day
eptember 13

'Garden Ornamentation"

Members receive an additional five percent discount on tatuary and stepping stones.

Members' Days

On Members' Days, Garden members receive free tram rides, additional discounts in the Garden Gate Shop, and 10% off in the Gardenview Restaurant.

September 13 Saturday

"Garden Ornamentation"

11 a.m., Shoenberg Auditorium. Slide lecture by Ted Spaid of Spaid Associates presents well-known gardens around the world and discusses classic and modern garden designs, including lighting, sculpture, fences, water, and paving features. Seating is on a first-come, first-served basis. Free, for members only.

October 18 Saturday

Fall Colors & Cider Walk

10 a.m. to 1 p.m., Shaw Arboretum. Hike the trails, enjoy the colors of the prairie and late blooming flowers in the Whitmire Wildflower Garden, and sip a cup of sweet apple cider on the shady lawn of the Bascom Manor House after visiting the "People on the Land" exhibit. Free, for members only.

GARDEN GATE
SHOP

Annual Fall Bulb & Gift Sale

September 18 — 21, 1997
Members' Pre-Sale: Thursday & Friday, 9 a.m. to 6:30 p.m.
Sale Opens to Public: Friday & Saturday, 9 a.m. to 5 p.m.

IN ORTHWEIN FLORAL DISPLAY HALL — Thousands of new spring blooming Holland bulbs, hybrids for early, middle, and late flowering, a wonderful array of colorful hardy mums, herbal topiaries.

NEW selections of ornamental grasses, fall-blooming perennials, native Missouri wildflowers, hardy ferns and hostas.

NEW "Garden Table" – Bulbs and perennials that can be seen growing in the Garden in Fall 1997 and Spring 1998!

IN THE GARDEN GATE SHOP – Gifts for indoors and out. Colorful burlap garden aprons, Bug Bans safe for the whole family made with natural geranium oil, recycled aluminum containers, vases, and pots, rain forest kits for children (make your own chewing gum!), coloring books featuring botanical gardens of the nation, lime cilantro pesto, and lots more. Members receive a 20 percent discount, all four days.

October 4 & 5

"Best of Missouri"

The Shop hosts local artists in Monsanto Hall:

- Joan Treis – Handcrafted wood figures
- Camille Latzer – Handcrafted glass jewelry
- Diana Wolf – Handblown, handpainted glass
- Hawks Grove Gardens – Botanical illustrations on notepaper and journals
- Karl Pelafos – Framed photographs of the Garden
- Plus – Authors' Booksignings: Jennifer Storey Gillis, Brett Dufur

Members' Day
October 18 Thursday

Fall Colors & Cider Walk

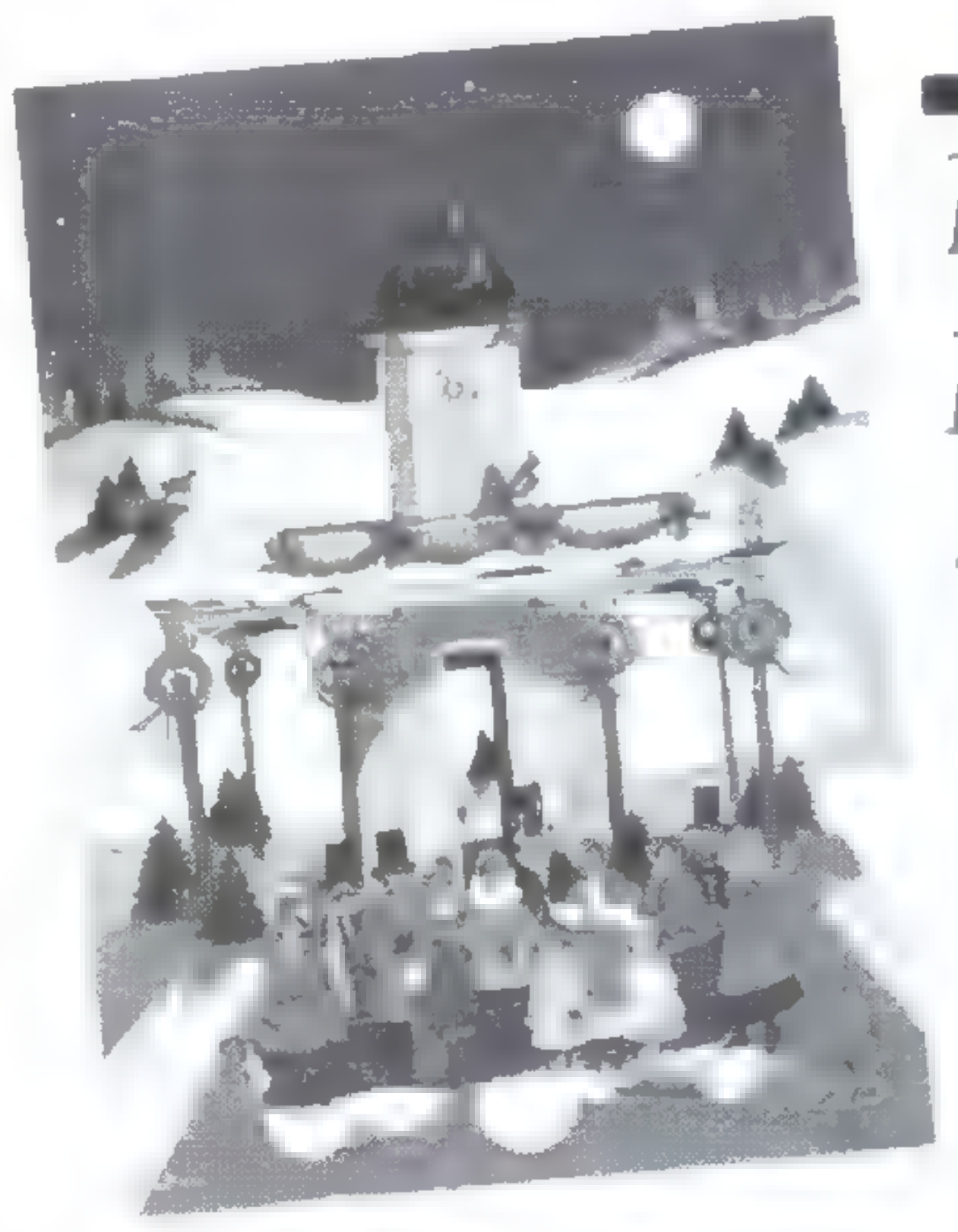
Members receive an additional five percent discount on the Whitmire Wildflower Garden video and a wonderful selection of prairie grasses.

1998
Missouri Botanical Garden Calendar

Now Available

1998 Garden Calendar

IT'S HERE! Everyone's favorite calendar, featuring a spectacular selection of new photographs of Garden scenes by Jack Jennings, plus a colorful poster on the Solanaceae family. 16 x 12 inches, $11.95.



1997 Garden Holiday Card

Another in the delightful series by St. Louis artist Ann Thompson featuring Henry Shaw and friends. Package of 12 cards and envelopes, $13.

Sixth Annual "Best of Missouri" Market

Saturday & Sunday • October 4 & 5, 1997 • 9 a.m. to 5 p.m.

Admission

(Includes Garden admission): $2 members; $5 adults; $3 seniors age 65 and over; children age 12 and under free.

Sponsored By

GrandPa's, Commerce Bank, Premier Homes, Pepsi, KMOX, NationsBank, St. Louis County Farm Bureau, Missouri Department of Agriculture – Agri Missouri Program, Pershing Charitable Trust.

Crafts

Hand-Thrown Pottery
Willow Furniture
Carved Wooden Birds
Clay Tile
Dried Flowers & Wreaths
Decorative Ironwork
Soaps
Decorated Gourds
Custom Jewelry
Rock Art
Hand-Poured Candles
Batik Wearable Art

Food

Barbeque Sandwiches
Homemade Salads
Jumbo Pretzels
Brats & Hotdogs
Soft Drinks & Beer

Entertainment

Ray & Carolyn Wix, Classic Country from Branson, Missouri
River City Singers
The Boney Goat Band

Produce

Baked Goods
Candies
Cider
Salad Dressings
Fruit
Gift Baskets
Herbs
Honey
Meats
Mushrooms
Preserves
Popcorn
Relishes
Sauces
Wines
& Much More!

Specialty Growers

Bowood Farms
Missouri Wildflowers Nursery
Herbin' Center

Kids' Corner

Clydesdales

Mizzou Barnyard

Milk-a-Cow Booth

Decorate a Pumpkin

Zuma Bead

Hallmark's Kaleidescope for Kids

Agricultural & Environmental Displays

Entrances

Enter at Spink Pavilion on Tower Grove or the main entrance on Shaw Boulevard, where there will be direct access to the vendors' area from the parking lot. Additional parking will be available at Mullanphy School, 4221 Shaw, and in Tower Grove Park, where you can catch a tram shuttle to the Garden. For more convenient parking arrange a car pool, or take MetroLink and the No. 13 Bi-State Bus direct to the Garden.

Also on October 4 & 5:

The Historic Shaw Art Fair

One hundred artists from across the United States exhibit along Flora Place, 10 a.m. to 5 p.m. both days. Juried show of artwork includes a variety of media, sponsored by the Shaw Neighborhood Improvement Association. Admission: $3 adults, $2 for visitors to "Best of Missouri" Market.

Special Members' Preview

Saturday morning, 8 to 9 a.m. Come early for complimentary coffee and donuts. For Garden members only.

BEST of MISSOURI
MARKET

Follow the Yellow Brick Road! Tuesday, September 9, 1997

A Party for Donors of Bricks in the Members' Entry Court

JOIN US for a reception exclusively for donors of bricks in the Members' Entry Court at the William T. Kemper Center for Home Gardening. All brick donations support the Missouri Botanical Garden. Bricks may be inscribed with the names of yourself or your loved ones.

- Engraved bricks — $300 each.
- Bronze signature bricks — $1,000 each. Up to 28 characters may be engraved on each brick — names only, please. We cannot accommodate dates or sentiments.
- Payment may be made by cash, check, or MasterCard/Visa.
- Order forms are available at the Membership Services Desk in the Ridgway Center, at the Kemper Center, or you may call the Development Office at (314) 577-9495.

Bricks ordered after September 1, 1997, cannot be installed in time for the party on September 9, but donors will still be welcome to attend the party. Order your brick today!

"Garden Expressions" on KFUO

DON'T MISS "Garden Expressions," the new radio spots on KFUO Classic 99 (99.1 FM) every Thursday at 7:35 a.m. and 5:35 p.m. The one-minute spots are introduced by Peter Raven and feature events at the Missouri Botanical Garden, gardening tips, and environmental messages. Our warmest appreciation goes to The Gifted Gardener, sponsor of "Garden Expressions."

Save the Date — November 8!

"The Tropics – After Hours"

The Climatron after dark — what could be a more fun way to kick off your Saturday night? Watch for upcoming details on our party for ages 25-40 on Saturday, November 8. Plan now to meet your friends from 7 to 9 p.m. for music, refreshments, and a very special look at the Climatron after hours.

New Course Offered in Tai Chi Qigong

LEARN to access the harmony and vibrancy of nature through the gentle movement and breathing techniques of Qigong. This ancient Chinese art, featured on Bill Moyers' PBS special "Healing and Mind," has been used for centuries to channel the body's inner force — called "Chi" — to enhance vitality and promote self healing. Classes will be held in the natural beauty of the Garden grounds. Participants will develop a higher sense of awareness, relaxation, and inner potential. J. Justin Meehan, a recognized authority on Chinese Qigong and Taijiguan, will describe Qigong's focus on gentle movement that is suitable for young and old alike. The course will be held on Tuesdays, September 16, 23, and 30. For information see the brochure recently mailed to all members. Telephone registrations are accepted after September 10. Call (314) 577-9441, Monday through Friday, 9 a.m. to 5 p.m.

Practicing Tai Chi Qigong in the natural beauty of the Garden grounds, participants will develop a higher sense of awareness, relaxation, and inner potential.

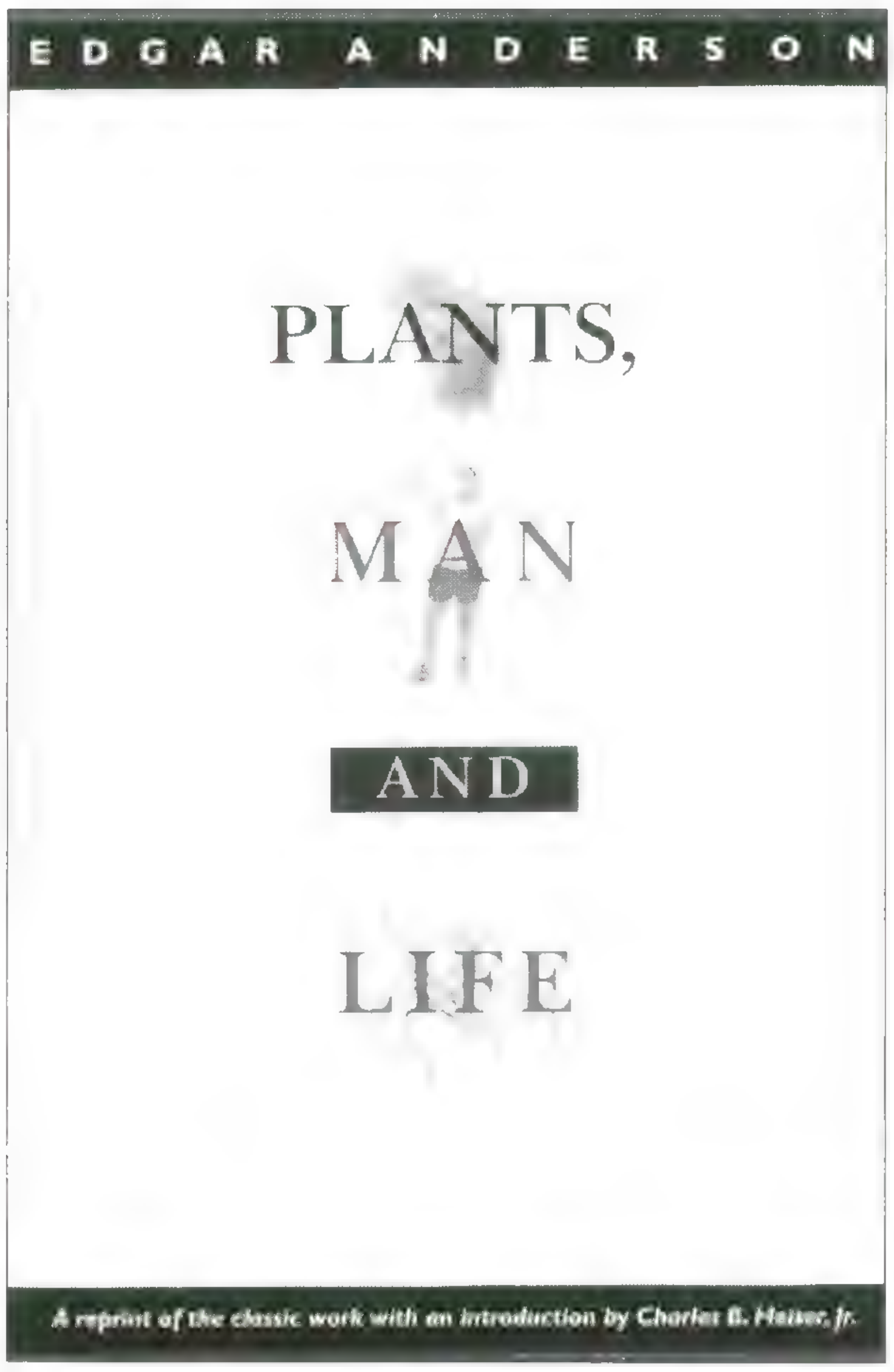
An optional introductory class will be held on Wednesday, September 3, from 7 to 8:30 p.m. Meet in the Kemper Center classroom. Please wear loose, comfortable clothing. $7 members, $10 non-members.

MARY BUTKUS

Ford Motor Company Donates New Tram

IN JULY the Garden received a major donation from Ford Motor Company to support the purchase of a new electric tram for visitor tours. Two trams, formerly used at the 1996 Olympic Games in Atlanta, are now in use at the Garden. "These trams offer a wonderful improvement in service for our visitors," said Peter H. Raven, director. "We are very grateful to Ford Motor Company for helping to make it possible."

Shown with a new tram are (from left) Greg Kuchenberg, Tom Kilbane, and Bill Schicker of Ford Motor Company, with Peter Raven at right.


EDGAR ANDERSON
PLANTS,
MAN
AND
LIFE
A reprint of the classic work with an introduction by Charles B. Heiser, Jr.

> *"Once in a great while a popular scientific book opens a whole new field.* Plants, Man and Life *is such a book."*
>
> — J.N. Leonard, New York Times Book Review, July 1, 1952

EDGAR ANDERSON came to the Missouri Botanical Garden in 1922 after completing his graduate training in botany at Harvard, and remained here until his death in 1969. He served as director of the Garden from 1954 to 1956.

In the foreward to the new edition, Charles B. Heiser, Jr., professor emeritus at Indiana University, writes, "Edgar Anderson spent most of his life at the Garden, and his book concerns subjects in which he was vitally interested.... Anderson's approach to scientific problems, as well as to his writing, is often unorthodox. Perhaps it is this that makes his work so appealing to the professional and nonprofessional botanist alike. He devotes an early chapter to the 'history of weeds — a detective story.' In another one on 'how to measure an avocado' he tells us that it is the simplest questions that are the hardest to answer....[*Plants, Man and Life*] certainly opened a new field for me."

To commemorate the hundredth anniversary of Edgar Anderson's birth, the Missouri Botanical Garden is reprinting his classic work,* Plants, Man and Life*. The new edition, 272 pages, is available in the Garden Gate Shop for $16.95.

Editor's Note — The delightful essay below originally appeared in the Missouri Botanical Garden Bulletin *in April, 1955. There is no better introduction to the writings of this remarkable educator.*

A Nice Quiet Evening With a Potato

by Edgar Anderson

People connected with our great universities tell me that old-fashioned botany is not a popular subject these days. It may be that these academic experts do indeed know what they are talking about but to one who sits in the Director's office of a big botanical garden the problem is not the lack of such an interest but rather how to find time to answer all the letters and the telephone calls of people who want to know more about plants. Inquiries pour in; publishers want books written; men's garden clubs, women's garden clubs want lectures or even whole courses in botany; plain John Doe and Jennie Doe want to know this, that, and the other thing.

Nearly all these people are adults. It may be that the average college or university student is adult enough for English Literature or Sociology, perhaps even adult enough for Mathematics but is not yet mature enough to study botany! Whatever the reason, those of us at botanical gardens have this ever-increasing thirst to slake. "Why didn't I study Botany in college when I had the chance?" This is the chorus of lost souls which one in my position hears day and night — and when I say night it is not just a figure of speech; the telephone still bears this plaint to my ears (often with apologies for calling at such a time) up into the late hours of the evening.

Nor is the phenomenon merely a local one. During the current month I am giving three consecutive lectures on elementary old-fashioned botany to a group of women in New York City; the mail which comes to my desk is country-wide. There is certainly in these days a growing curiosity about plants. It is connected, but only indirectly, with the present-day increase in garden-club membership and with the tremendous development of amateur interest in gardens and wild flowers and plant breeding. The number of active, specialized plant societies increases each year. The old established ones such as the Rose Society and the Orchid Society have been joined by many others in the last two decades. There are now Pentstemon and Primrose societies on a national scale. There is even an active, intelligent, well-directed group whose very name "Gesneriad" demonstrates the degree of specialization which is now being reached. The man in the street may not have heard of Gesneriads, for they have no common name. A Gloxinia (if you happen to know it) is our commonest Gesneriad, but there is now a group of highly talented amateurs—chemists, printers, real-estate salesmen and the like—who gather nationally once a year and discuss Gesneriad matters so technical that they are beyond the ordinary knowledge of ordinary botanists. This interest in plants and in botany, and most particularly in old-fashioned kinds of botany, seems to be growing rapidly. I imagine that if it keeps up for another decade or so the universities will at length be affected and an appropriate kind of botany may get taught in colleges.

In the meantime what does a botanical garden do about this flood of requests? Well, everything it can. We answer telephone calls and letters, we give lectures, we organize courses, we write books if we can find the time, but most persistently of all we persuade the intelligent public that if they love plants they need few books; all they need is enough enthusiasm to study the plants themselves. These people who come to us in such numbers are adults. If one is dealing with adults the best thing to do is to show them how to help themselves.

All of which brings us back to our title, "A nice quiet evening with a potato." If you're an adult and you want to teach yourself how to find out about plants there is no more convenient way to start. Get a potato, a nice big one, out of the bin, wash it off carefully, and sit down in a comfortable chair with a good light coming over your shoulder. Turn the potato over in your hands. Don't be too tense and earnest. If you can get a friend with kindred interests to join you, so much the better, and if you talk about other things now and then it's all to the good. Just try to build up a little intelligent enthusiasm for this starchy sphere which previously you have taken so for granted.

Well, let's look at the potato. Most obviously it has eyes. Nearly everybody knows this much, yet have you really ever looked a potato in the eye? There is something more or less like an arching eyebrow with an eye-hollow within the arch and coming up out of this hollow are little dark buds. Now notice the arching eyebrows. They don't arch any old which way; they are all focused in the same direction. To our surprise we will learn that each potato has a well-defined front end and an equally well-defined rear end and that these are very different in appearance. At the front end the eyes are clustered closely together, the buds always frontwards from the arching brow. This brow is really a kind of leaf, or the mark where such a scale leaf was borne and then fell off. Sometimes new potatoes will show delicate little membrane-like scales rising up off the tuber's surface in these arching lines; in the ordinary grocery-store spud the membranaceous scale has usually gone by and only a faintly curving scar is left. Now turn the potato about and look at the other end, then examine the whole region in between. At the other extreme from the active apex with its closely clustered buds you will find either a piece of the little round underground stem on which the potato was formed or the neat little circular scar where this stem was broken off.

A potato, you see, is what botanists call a tuber. It is just the swollen coalesced buds at the end of an underground stem. It is not a root; it is part of a true stem though borne underground. Like all stems, it has joints (the technical word is nodes) at which leaves (or leaf-like scales) are borne and it is in the axils of these scales that all the new branch stems arise when the potato is sprouted. This is how one tells stems from roots in those plants with both underground stems and true roots. Stems have nodes (joints); roots don't. Stems have leaves or scales at the nodes; roots have neither. If you find a root with some little scales on it at fairly regular intervals, it isn't a root. It's an underground stem of some sort. Finally, stems are precise in their pattern of growing; they branch only in the axils of the leaves or scales; roots branch very irregularly.

Our humble potato is therefore a much more precisely organized bit of life than one would have imagined. Like virtually all life it is highly polarized. It has a head end, an apex, at which growth is most active. It has an innate orientation to up and down, to frontwards and backwards. Plant your potato in a bowl of sand or sawdust or vermiculite, keep it well watered and watch its development for a few weeks. See the way the new stems sprout out from the buds near the apex. Plant another potato in the garden and dig it up and wash off the roots after the plant is well developed. You will be able to see for yourself the difference between the true roots and the jointed underground stem on which the potatoes are borne.

So what? Well, you'll have made a beginning at understanding for yourself the world around you. The world looks chaotic; deeper study shows us the order in it; with still deeper and more intensive study we are able to understand enough of the order underneath the apparent chaos so as to work with it rather than against it.

If the potato interests you after you have learned something of how it is put together, go on from there. Look at some of the other brown things we dig up out of the earth and figure out for yourself just how much of each one is stem, what is root, and what is leaf. A gladiolus bulb, for instance, is little leaves on top of a thickened stem; an onion is overlapping juicy leaves attached to a small central stem; an iris plant is mostly a jointed horizontal stem with leaves and roots coming off at the nodes and with occasional upright flowering branches rising from the axils of the leaves. After a few such attempts you'll begin to understand about roots and stems and leaves. The problem of whether a stem is a stem and a root a root turns out to be more complicated than you think. A stem is a very definite kind of thing; even though it grows underground and looks like a root it is still a stem. It has nodes and it branches only at the nodes. It can't develop any old way, like a root, but follows a definite pattern. Having set up this stem complexity, nature has been astute in using it in various ways. Each kind of plant has its own distinctive set of internode and stem-branching patterns. They make that kind of plant what it fundamentally is; if you are going to manage the plant efficiently you need first of all to comprehend these underlying patterns.

So if plants are beginning to interest you and you wish you knew more about them, no need to sigh for lost opportunities, no need for that magic book which will tell you painlessly the very things you wish you knew. Sit down quietly with a potato, a nice large, clean potato. Relax in your chair. Take a friendly interest in this succulent brown blob which you have previously ignored. Let it become a simple introduction to learning about plants from plants themselves. Take your first step towards botanical insight by spending a nice quiet evening with a potato.

If plants are beginning to interest you and you wish you knew more about them, no need to sigh for lost opportunities.

MISSOURI BOTANICAL GARDEN ARCHIVES

Edgar Anderson

Mellon Foundation Supports Research and Graduate Training Programs

THE ANDREW W. MELLON FOUNDATION has recently made grants that continue their ongoing support of Garden programs in botanical research and education. A three-year grant of $800,000 will support field studies in Peru, a checklist of plant species in Bolivia, the Flora of North America, and enhanced computer systems for botanical research. A five-year, $600,000 grant will provide training for graduate students in systematic botany.

"Words cannot express our great appreciation for this outstanding support from the Mellon Foundation," said Dr. Peter H. Raven, director. "The Foundation has done so much to support botany generally, and the Garden in particular. The outreach and importance of our programs are possible in large measure because of their commitment. We deeply appreciate the outstanding job they are doing in supporting so many worthwhile causes."

Continuing Field Studies in Northwestern South America

The Garden is recognized as the leader in the study of plants of Peru, Ecuador, Bolivia, Venezuela, and Colombia. About a fifth of the world's species of plants are found in the region, where the natural vegetation is subjected to unprecedented pressures.

Garden researchers have completed concentrated inventories of the plants of Peru and Ecuador. The current funding will allow the research division to proceed with a checklist of the plant species of Bolivia, the least intensely studied of the Andean countries.

Flora of North America

The Garden is the coordinating center for the Flora of North America (FNA), a vast project to gather and disseminate the most up-to-date information on all plant species north of Mexico. Thirty institutions in the U.S. and Canada are collaborating on the enormous undertaking. The three-year grant will support the collection of the scientific data that provides the core information for the FNA project, which is an unprecedented resource for further research by scientists, conservationists, resource management planners, and educators.

Below: Developing new computer technologies makes botanical research increasingly useful to an ever wider audience.

CLIFF WILLIS

Research Computing

The Garden's computer systems are fundamental to all its research projects. The Garden has begun redesigning its TROPICOS database and has established a Website to make botanical information readily accessible worldwide. Further development in these areas will make the results of the Garden's botanical research increasingly useful to an ever wider audience.

Graduate Training Program

Fewer and fewer universities today maintain the kind of herbarium and library essential for training taxonomists. The Garden staff of Ph.D.-level research botanists, many of whom serve on the faculty at one or more of the local universities, utilize the Garden's exceptional collections to offer one of the world's most comprehensive programs of graduate studies in plant systematics and taxonomy.

About 25 students are currently working toward advanced degrees from local universities while studying under the direction of Garden scientists. The students are trained in virtually all aspects of systematics, including herbarium work, morphology, cladistics, and molecular studies, as well as floristics, cytology, anatomy, nomenclature, library studies, scientific publication, and databasing. For their field studies, students can take advantage of the Garden's research projects in many countries, especially in the tropics.

Flora of North America Publishes Volume Three

Flora of North America has published Volume Three, which includes index, 100 illustrations, and 868 distribution maps covering the first 32 families of dicotyledonous angiosperms occuring north of Mexico. Some of the important groups included are oaks, elms, magnolias, birches, poppies, buttercups, and delphiniums.

Volumes may be purchased by calling the publisher, Oxford University Press, at 1-800-451-7556. See the November/December issue of the *Bulletin* for a complete update on the Flora of North America Project.

Flora of the Venezuelan Guayana Publishes Third Volume

Made famous by Arthur Conan Doyle's novel *The Lost World*, the *Flora of the Venezuelan Guayana* is the first full account of the plants of this botanically rich and geographically ancient region of South America. More than 180 botanists are contributing to the project, which will occupy nine volumes. Over 5,000 line drawings by Venezuelan botanical artist Bruno Manara accompany the floristic treatments.

Volumes One, Two, and Three, plus a set of maps of the region, are available for purchase from the Garden's Scientific Publications Department. Call (314) 577-9534 or fax (314) 577-9594.

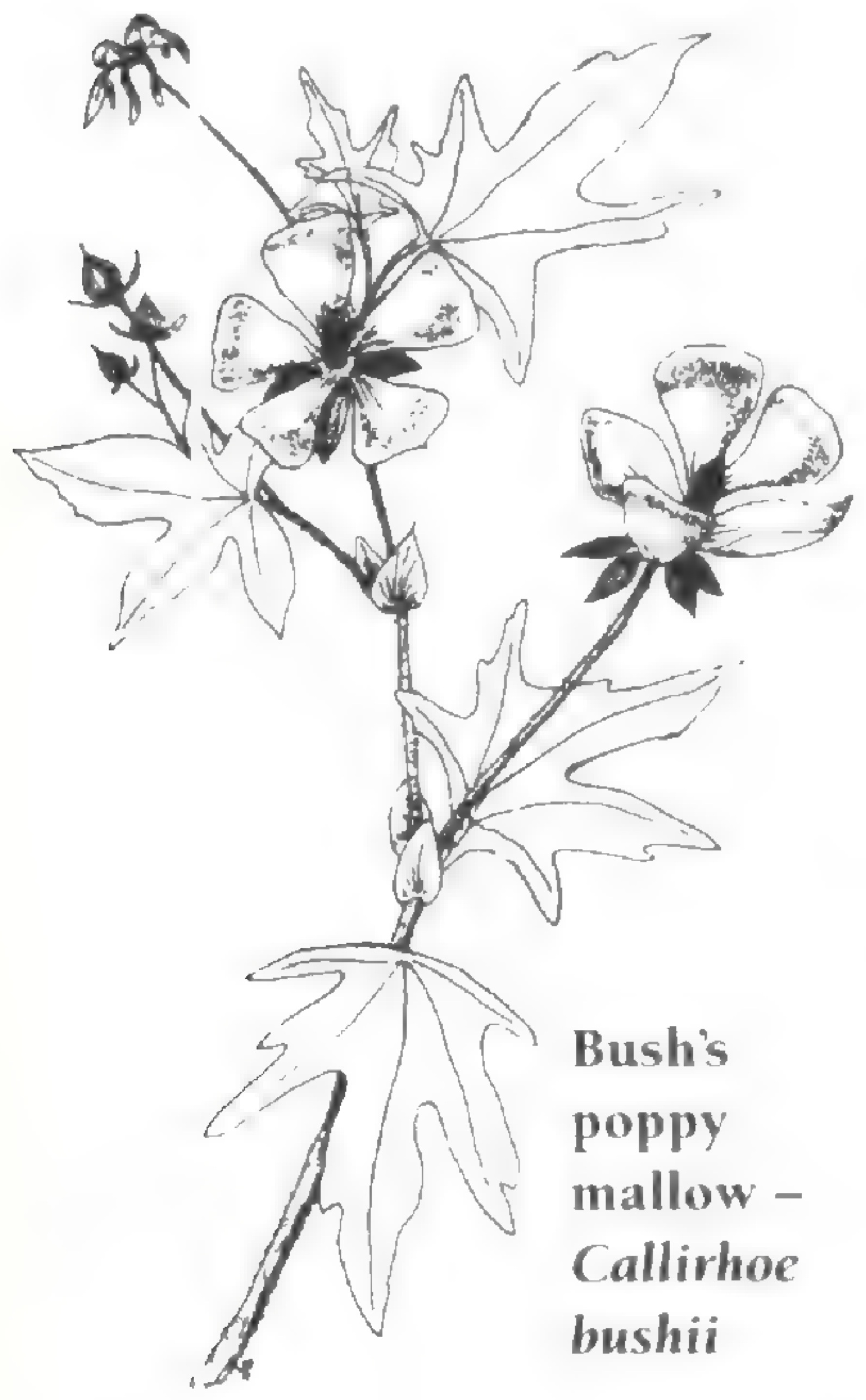
In the Interest of the Species

by Kimberlie McCue, Ph.D.

MBG Conservation Biologist

EVERY DAY, somewhere in the world, another species falls into the abyss of extinction, taking with it a unique beauty and potential that can never be recreated. Every species lost weakens the intricate fabric of life on Earth.

The Missouri Botanical Garden is strongly committed to preservation of the world's plant species. Working closely with the Center for Plant Conservation (CPC), a national organization headquartered at the Garden, we are maintaining some of the rarest plants in the Midwest region.



Bush's poppy mallow – *Callirhoe bushii*

Twenty-eight botanical gardens and arboreta help conserve the rarest native plants in the United States in the CPC National Collection of Endangered Plants. The ultimate goal is to represent the maximum genetic diversity within each species. In order to have a genetically representative collection, seed must be collected from many plants in several different populations, often over a period of years. Those seeds are then stored at the Garden and at the National Seed Storage Laboratory in Fort Collins, Colorado. Additionally, some seeds are germinated and grown to maturity for display and research at the Garden and Shaw Arboretum.

Occasionally a CPC participating institution finds that, because of the climate or some other circumstance, they cannot adequately maintain a particular species. The institution then looks for a more suitable "home" for the species within the CPC network. This has resulted in the recent transfer of three rare species to us in St. Louis.

New Species at the Garden

Geocarpon minimum – *Geocarpon* is so unusual and seldom seen that it has never acquired a common name. Its elusiveness is due in part to its very small stature — adult plants average only one inch in height. The plant's life cycle is also very short, going from seed to seed in about four weeks.

Populations of *G. minimum* have been found in Missouri and Arkansas, and it is considered endangered by both the Missouri Department of Conservation and the Arkansas Natural Heritage Commission. It is also listed as threatened under the federal Endangered Species Act. The major threat to Geocarpon is the destruction or modification of its habitat. For example, pasture improvement has lead to competition from more agresive prairie grasses, and off-road vehicles have degraded much of its native habitat.

Stewardship for this species is being transferred to the Garden from the Nebraska Statewide Arboretum. We will begin building our conservation collection of *Geocarpon minimum* with a collecting expedition in the spring of 1998, the next time the species is due to set seed.

Bush's poppy mallow – *Callirhoe bushii*. This species is a striking member of the poppy family, producing deep crimson to magenta-colored flowers. Populations of *C. bushii* are sparsely distributed in counties near the shared borders of Missouri, Oklahoma, and Arkansas. The plants grow in open rocky woodlands, the edges of glades, and along railroad right-of-ways. Threats include critically low numbers of plants within populations, sometimes as few as ten individuals, the encroachment of surrounding forests that shade out the poppies, and the use of herbicides near railroad tracks. Stewardship for this species is also being transferred from the Nebraska Statewide Arboretum. As Bush's poppy mallow can set seed as late as September, collecting to establish a stock here may begin this fall.

Leafy prairie-clover – *Dalea foliosa*. This species is classified endangered under the federal Endangered Species Act. Currently there are a total of 14 known viable populations: two in Alabama, three in Illinois, and nine in Tennessee. Some of these are very small, with fewer than fifty individuals. Since *D. foliosa* was first described a little over a hundred years ago, its numbers have declined by 45 percent. Leafy prairie-clover grows only in limestone cedar glades, limestone barrens, and open dolomite prairies. These habitats are disappearing rapidly as suburban areas become more developed.

Responsibility for maintaining a collection of the leafy prairie-clover is being transferred from Holden Arboretum in Ohio. Seeds of this species usually ripen in October, and efforts will be made to collect seed this fall.

Sponsors Support Conservation of Rare Plants

The CPC National Collection of Endangered Plants is maintained through the generous support of individuals and organizations who sponsor individual plant species. Plant sponsorships support seed collection, seed storage, and horticultural research for these rare species in perpetuity.

Currently, five of the 21 species maintained at the Garden have no sponsorship. Two are the newly added *Geocarpon minimum* and *Callirhoe bushii*, Bush's poppy mallow. The three other unsponsored taxa, which were brought into the collection in the last two years, are *Lesquerella globosa*; Ouachita Mountain goldenrod, *Solidago ouachitensis*; and Stern's medlar, *Mespilus canascens*.

For more information on sponsoring a rare plant in the CPC National Collection, please call Steve Biever at (314) 577-9456.

30 Years at the Garden

Thomas B. Croat, Ph.D.

P.A. Schulze Curator of Botany

CLIFF WILLIS

TOM CROAT spends three to four months a year doing field work in tropical regions all over the world, and he has over 80,000 plant collection numbers to show for it. He is one of the few experts in the Araceae, or aroid, family, which includes familiar houseplants such as philodendrons, calla lilies, and caladiums.

The aroids are a large and complex family, still very poorly known to science because of the difficulty of studying the plants. Many are very large and often grow high in trees in dense forests, making them difficult to collect and describe. Also, aroids are generally succulent and fleshy, which makes studying them from dried herbarium specimens a real challenge. For his studies, Croat maintains a huge collection of some 6,000 aroid plants in the Garden's research greenhouses, the largest collection of its kind in the world.

When Dr. Croat came to the Garden in 1967, after receiving his Ph.D. from the University of Kansas, there were only three other botanists on the staff, which today numbers more than 50.

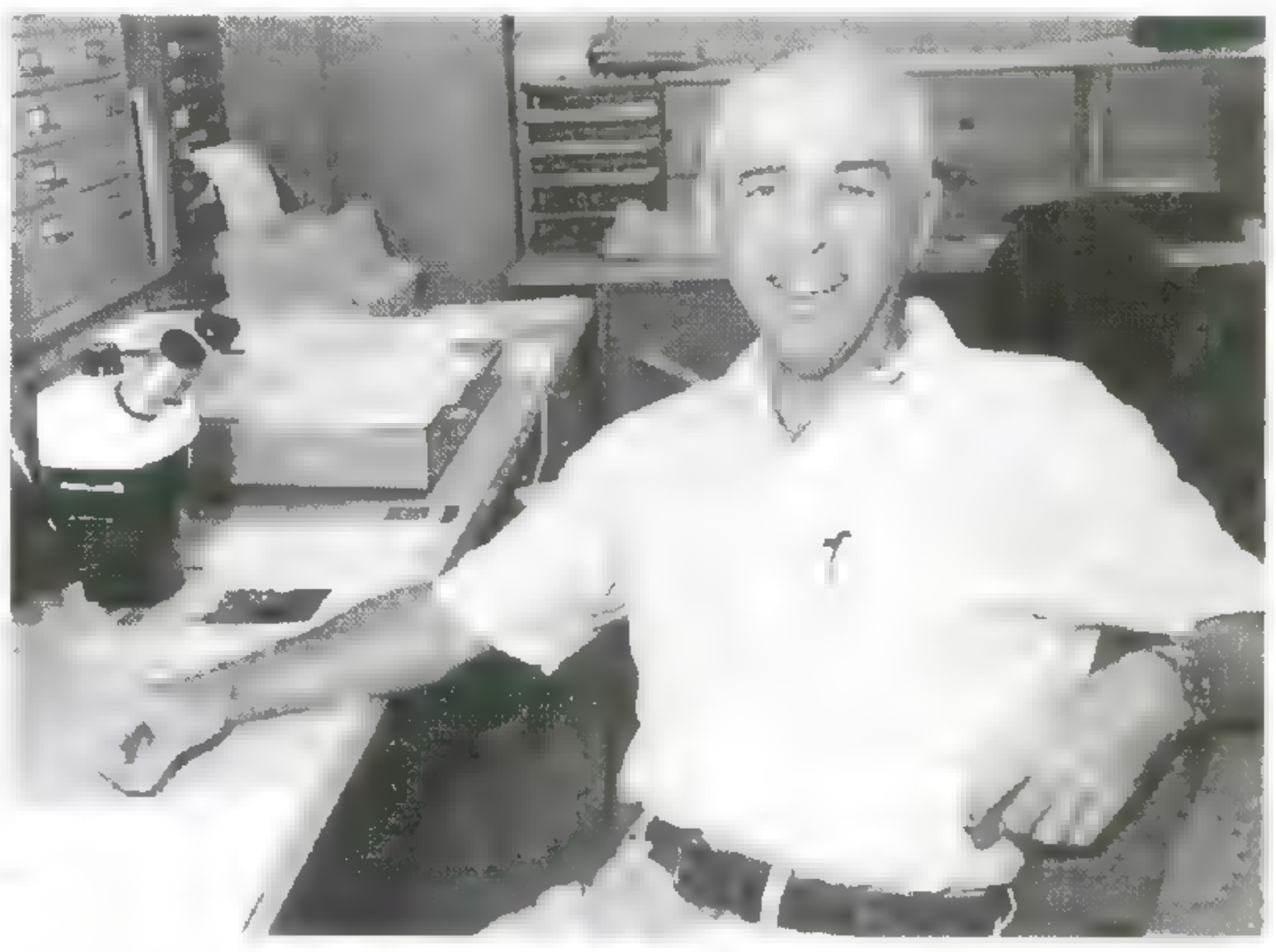
25 Years at the Garden

Peter Goldblatt, Ph.D.

B.A. Krukoff Curator of African Botany

PETER GOLDBLATT came to the Garden in 1972 from his native South Africa, where he earned his Ph.D. from the University of Cape Town in 1970. He is an expert in the Iridaceae, or iris family, which has some 1,700 species and is particularly well represented in Africa, where more than half of the species occur. The family includes irises, gladiolus, crocuses, and many less familiar species.

The Garden is a center for the study of African botany, with the largest herbarium collections of African plants in North America. Dr. Goldblatt has an active research program studying Iridaceae in the field and focuses much of his work at present on pollination biology of the family. He maintains an extensive living collection of Iridaceae in the Garden's greenhouses for studies of floral morphology and chromosome cytology.



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Thank You to Sponsors of the 1997 Japanese Festival

THE 23RD ANNUAL JAPANESE FESTIVAL at the Missouri Botanical Garden was generously underwritten by the following donors:

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New Paths for the Japanese Garden

TWENTY YEARS after the Japanese garden was dedicated, funds have been appropriated by the State of Missouri to help replace the pathways in this major visitor attraction. The 14-acre garden is the largest traditional Japanese garden in North America.

The $250,000 grant will provide funds to begin the estimated $925,000 improvements to the pathways, including drainage work and replacement of the worn surfaces. "We are very grateful for this support," Peter Raven said, "and we will continue to work to secure the remaining funds over the next few years."

The idea for a Japanese garden at the Missouri Botanical Garden originated with the Japanese American Citizens' League. It was made possible through the collaboration of many different private and public agencies and organizations, including the State of Missouri and the City of Nagano, Japan.

Called *Seiwa-en*, "garden of pure, clear harmony and peace," the Japanese garden was built as a natural area, with elements of Japanese design such as bridges, a teahouse, stone lanterns, and small gardens of varying styles, displayed against a beautifully landscaped background, including a 4-1/2 acre lake. For the past 22 years, the citizens of the St. Louis region and the State of Missouri have celebrated the Japanese garden and Japanese customs with an annual Japanese Festival at the Garden that attracts more than 30,000 people.

Above: Taiko drummers are a highlight of the annual Japanese Festival.

Rare Books on Display

The Curious Herbal **and other rare volumes on medical botany and medicinal plants will be on display beginning October 15, 1997, in The Bernard Becker Medical Library of the Washington University School of Medicine, 660 S. Euclid Avenue, in the Archives and Rare Books Section on the 7th floor. The exhibit includes works from the collections of the Missouri Botanical Garden and Washington University School of Medicine. It is open to the public daily during regular library hours. Visit the Garden's Website at <http://www.mobot.org/mobot/research/library/kohler/> for a look at the complete color illustrations from the splendid multi-volume work,** ***Kohler's Medizinal Pflanzen.***

AMONG many important volumes in the Garden's rare book collection are two editions of The Curious Herbal *of 1737. The work was illustrated by Elizabeth Blackwell, one of the first women to achieve fame as a botanical illustrator. The English edition has been restored through a generous gift from the Episcopal Diocese of St. Louis, which was given in honor of retired Bishop William Jones. The German edition, a three-volume revision by Christopher Trew (Count Palatine), is in need of a benefactor to support repair of its deteriorating pages and bindings.*

The Elizabeth Blackwell Story

by Huber M. Walsh

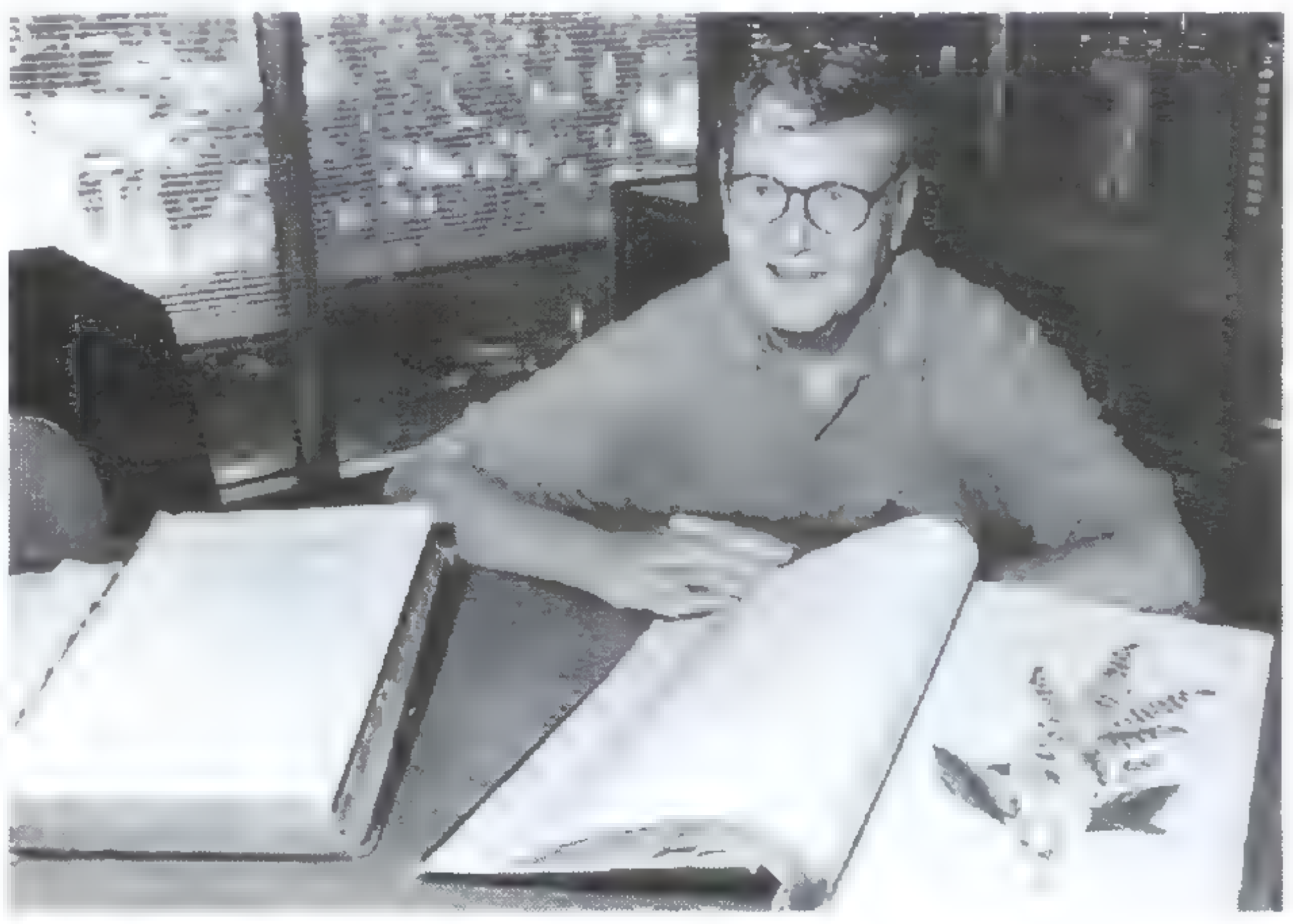
THE Garden's rare book collection is fascinating for its beauty and historic significance, and also for the human stories behind some of its finest volumes. Such a story surrounds Elizabeth Blackwell, illustrator of *The Curious Herbal* of 1737.

When her husband, a physician, landed in debtor's prison, Elizabeth learned of plans to publish an herbal illustrating recently discovered plants from the New World. Although unskilled in botany, Elizabeth was a talented artist. She arranged to collaborate with Isaac Rand, a botanist and curator of Chelsea Physic Garden, where many of the New World plants were being cultivated. Rand prevailed upon her to relocate nearby so she could illustrate the plants from life.

The resulting two-volume publication was an impressive achievement. Surgeons, doctors, and apothecaries acclaimed Elizabeth's 500 illustrations and the informative text. The most important commendation came from the Royal College of Surgeons, which virtually assured the work's financial success.

Elizabeth's royalties purchased her husband's freedom, but after a few years he deserted her and their child and moved to Sweden, where he was named court physician to King Frederick I and was later hanged for his alleged involvement in a plot to overthrow the King.

Less is known about Elizabeth during these latter years. Bit-by-bit she sold off rights to the book to support herself and her child. Ever the loyal wife, she also helped finance her husband's foreign adventures. She died in 1758. ■



VOLUNTEER PROFILE – Huber M. Walsh, shown here with* The Curious Herbal*, is a retired professor of education. He began volunteering in the Garden herbarium several years ago, assisting the late Alwyn Gentry with his field notes and slide collections. In 1993, after retiring from the University of Missouri-St. Louis, Hu began volunteering in the Garden library, where he works with the rare book collection. As the author of six books and the former editor of two national journals, Hu provides invaluable assistance to the library staff. His wife Shirley is a volunteer with the Garden Guides.

Lecture Presents Powerful New Evidence on the Shroud of Turin

AT THE GARDEN on June 6, 1997, Professor Avinoam Danin of the Alexander Silberman Institute of Life Sciences at the Hebrew University of Jerusalem lectured on "Flower Images on the Shroud of Turin." He presented evidence supporting the view that the Shroud of Turin — the garment in which Jesus is said to have been wrapped after his crucifixion — originated in the land of Israel.

Prof. Danin, a world-renowned authority on the plants of Israel, and his collaborators, Dr. Alan Whanger and his wife Mary of Duke University, have succeeded in identifying 28 species of plants that grow in the greater Jerusalem area among the images of spring flowers that appear on the Shroud. The researchers believe that their findings will aid in resolving some of the mystery that has long surrounded the Shroud, which is housed in the Cathedral of Turin, Italy, and is considered one of the treasures of the Christian world as well as an item of particular archaeological interest.

Prof. Danin was asked by the Whangers to assist them in identifying the images of plants they had revealed on the Shroud using special photographic processes. Pollen grains recovered from the Shroud in the 1970s by Dr. Max Frei, a forensic scientific expert from Switzerland, provided additional confirmation.

Henry Shaw Returns

CLIFF WILLIS

Our founder Henry Shaw paid us a visit on Sunday, July 27 to celebrate his 197th birthday and the 125th anniversary of Tower Grove Park. Mr. Shaw, portrayed by St. Louis actor Joneal Joplin, presided at festivities in the Park, where he planted a tree. Then his horse-drawn carriage led a procession, complete with a marching band, up the avenue to Tower Grove House, where he welcomed guests to his birthday celebration at the Garden. Mr. Shaw was looking very spry in spite of the 100-degree heat, and he seemed delighted with the progress at the Park and the Garden, both of which he founded

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Admission

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Featuring

30 new vendors, plus lots of old favorites! See page 16 for details.

BEST of MISSOURI
MARKET

Special Members' Preview

Saturday morning, 8 to 9 a.m. Come early for complimentary coffee and donuts. For Garden members only.

A WEEKEND OF FUN!

Missouri Botanical Garden BULLETIN (ISSN 0026-6507)
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NOVEMBER/
DECEMBER
1997

HOLIDAY FLOWER SHOW
Members' Preview November 25

VOLUME LXXXV
NUMBER SIX

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

THIS YEAR, when you receive your invitation to contribute to the Garden's year end appeal, I ask you to take a moment to consider — what would the Garden be like without these funds? Gifts to the year end appeal provide general operating support for our daily activities and services. Operating support helps keep plants blooming on the grounds, lights on in the classrooms, and our historic buildings in good repair. The wonderful facilities at the Garden need unrestricted funds in order to deliver the services we have all come to expect. Each of you, our members and the entire community, has helped us to create a world famous Garden here in St. Louis. With our year end appeal, I ask you to give generously, in addition to your membership dues, to help keep our Garden strong.

On page 15, we announce the charter members of the Peter H. Raven Society. These individuals have made exceptional annual gifts of unrestricted funds for several years. The society was established last year, in honor of my 25th anniversary as director. It gives me enormous pleasure to be able to thank these men and women, whose support and friendship mean so much to the Garden.

The next pages describe recent achievements of the Partnership Campaign. With the magnificent support of Monsanto, we are within $1.2 million of our goal and working hard to complete the campaign by next March.

The Holiday Flower Show opens for Thanksgiving weekend this year, extending the festivities for your enjoyment. As we head into the holiday season, we are looking forward to welcoming you to all the wonderful celebrations we have planned.

— Peter H. Raven, Director

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400
24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522
You will need a touch-tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401
Information on jobs and volunteer opportunities at the Garden is available with a touch-tone phone. Listings are updated bi-weekly.

Horticultural Answer Service: 577-5143
9:00 a.m. to noon, Monday through Friday.

Master Composter Hotline: (314)577-9555
9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:
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Garden Hours
9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Kemper Center for Home Gardening:
9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: open until 8 p.m., Tuesday through Saturday. Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop: 9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: 9 a.m. to 6:30 p.m. daily, Friday and Saturday open until 7 p.m. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant:
Buffet service during hours the grounds are open.

Tower Grove House: 9:45 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January. Admission is free for Garden members.

Shaw Arboretum
Shaw Arboretum is located in Gray Summit, Missouri, just 40 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. Admission is free for Garden members. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House open 10 a.m. to 4 p.m. daily, closed on Mondays. For information call (314) 451-3512.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this Bulletin and mail to:

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On the Cover

The Holiday Flower Show is a favorite holiday tradition at the Garden.
– Photo by Cliff Willis

Editor
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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members For information, please call (314) 577-5118

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Research Facility To Be Named The Monsanto Center

MISSOURI BOTANICAL
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GARDEN LIBRARY

ON October 13, the Garden announced that its new research facility will be named The Monsanto Center in recognition of the generosity of Monsanto Company and Monsanto Fund, which together have given a total of $3 million to support the project. The Monsanto Center is the main component of the Garden's Partnership Campaign, which is within $1.2 million of its goal to raise $37 million by March 1998.

Robert B. Shapiro, chairman and chief executive officer of Monsanto, said, "As a life sciences company, we share the Garden's enthusiasm for excellence in research. The center was built in accordance with the principles of sustainable architecture, which we think is a remarkable asset for the City of St. Louis and the bi-state region."

Director Peter H. Raven said, "Monsanto's significant gift underlines the company's dedication to sustainable development, which is ultimately based on mastery of the plant sciences. It is also an important signal of Monsanto's commitment to the St. Louis community. We at the Garden are deeply grateful for this generous support. It will assist us greatly in our research and conservation activities throughout the world, especially in Latin America, Africa, China, and throughout North America."

The Monsanto Center will house most of the Garden's world-renowned library and its priceless herbarium collection of nearly five million plant specimens, gathered from around the world. The Center provides office space for the staff of 150 research botanists and associates, graduate students, and visiting researchers from around the world.

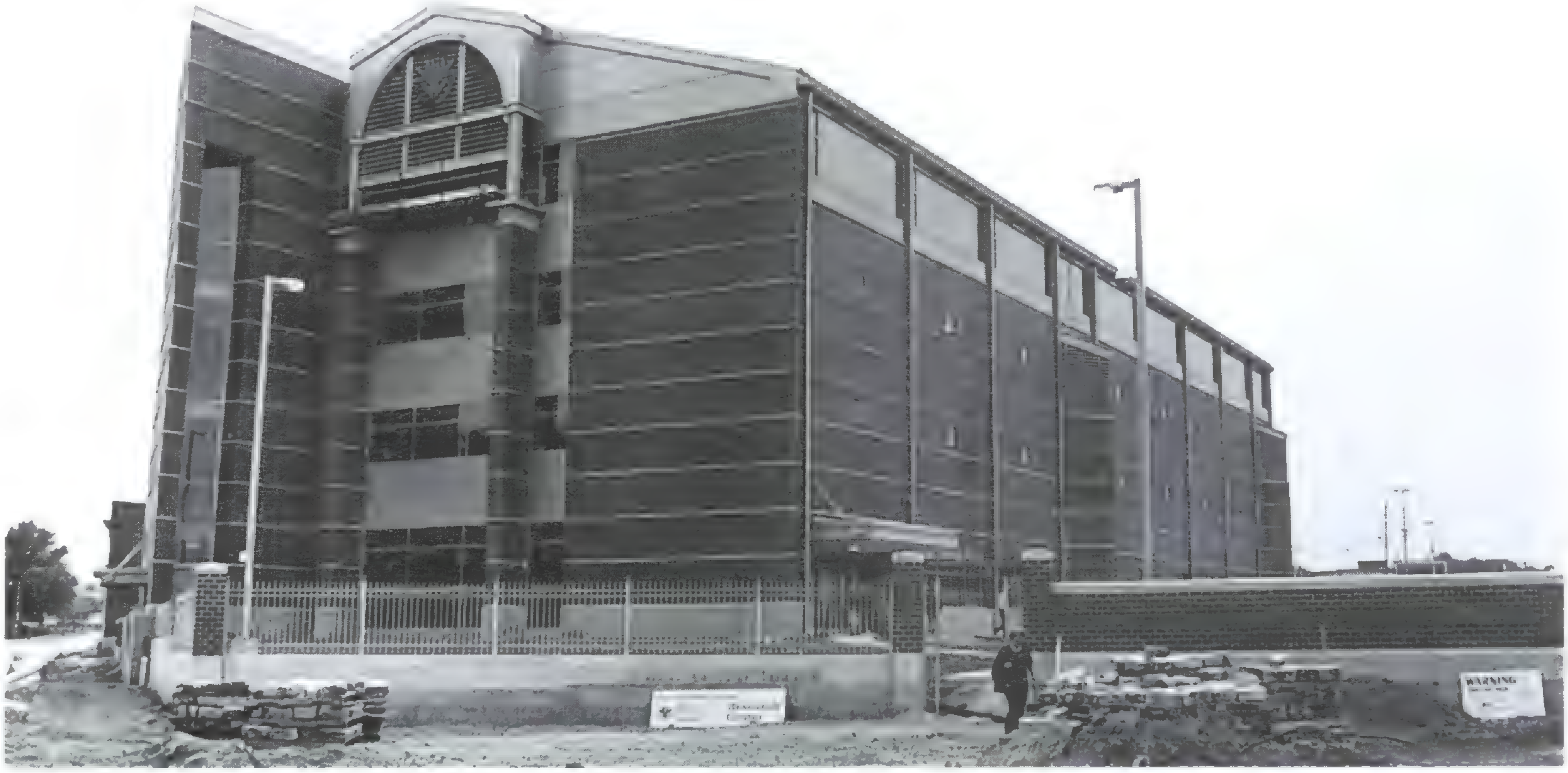
In the past 25 years, the number of botanists, research assistants, illustrators, database specialists, library staff, and support personnel has grown rapidly, exceeding the capacity of the John S. Lehmann Building, which opened in 1972.

Field collections by Garden botanists on nearly every continent of the globe and a far-reaching exchange program with other institutions add about 100,000 new plant specimens to the herbarium each year.

The $19.4 million, 79,000-square-foot Monsanto Center is a model of sustainable design and construction techniques, popularly known as "green architecture." The structure conserves resources with energy-efficient heating, cooling, and lighting systems and extensive use of recycled, recyclable, and sustainable materials and furnishings. The building is one of the first in this region to be protected from earthquake damage by state-of-the-art base isolators.

Located at the corner of Shaw and Vandeventer near the Garden, The Monsanto Center is expected to provide a positive and stabilizing influence to the Southwest Garden Neighborhood.

Monsanto Fund made the lead gift of $1 million for the Research Center in 1993, which was followed by additional million-dollar pledges in 1995 and 1997 from Monsanto. Monsanto Fund is the philanthropic arm of Monsanto Company. The naming gift continues a tradition of more than three decades of generous support for the Garden by Monsanto and its employees. Two other features named in honor of significant donations from the company are Monsanto Hall, the barrel-vaulted space in the Ridgway Center, and the main exhibit space in the William T. Kemper Center for Home Gardening.



Formal dedication of The Monsanto Center is scheduled for next April.

CLIFF WILLIS

A The lobby features stained concrete flooring and tree-shaped columns made from plantation-grown tropical trees, a renewable resource. Wood for panelling comes from sustainably managed forests. **B** Cut-pile nylon carpet in the rare book reading room. **C** Wood blocks of end-grain fir used in lobby flooring are recovered from the door manufacturing industry.

Building for the **Environment**

WHEN you walk into the Garden's new Monsanto Center, one of the first things you see are four handsome columns of polished wood in the lobby. Each comes from the tropics of a different continent: lacewood from Australia, canary wood from South America, zebra wood from Africa, and teak from Southeast Asia. The columns stand as an elegant symbol of the Garden's worldwide research in tropical botany.

From floor to ceiling, The Monsanto Center utilizes sustainable materials.

But a visitor might wonder — isn't the Garden dedicated to conservation of threatened tropical forests? Why did we cut down these trees?

As with many environmental questions, the answer illuminates other issues. "If there is no market for tropical woods, there is no incentive to develop renewable sources for them," said Grace Corbin, an associate who handles interior finishes and furnishings for Christner, Inc., architects. She explained, "The wood species for the tree-shaped columns in the lobby are grown on plantations in the tropics that provide a renewable source of rare and beautiful woods to the world market."

Promoting these kinds of sustainable resources protects trees in the wild and supports the economy of tropical countries, which helps to reduce the exploitation of natural areas. Similarly, the beautiful white birch panelling in the lobby and other parts of the building came from forests on a Native American reservation in Wisconsin which is owned and sustainably managed by the Menominee tribe.

Corbin and her colleagues brought this kind of thoughtful analysis to every phase of the project. "The Garden charged us with creating a building that made the smallest possible impact on the environment," she said. "The techniques and guidelines for creating sustainable architecture are still evolving, and when we started planning the research center four years ago, there wasn't a lot of data available.

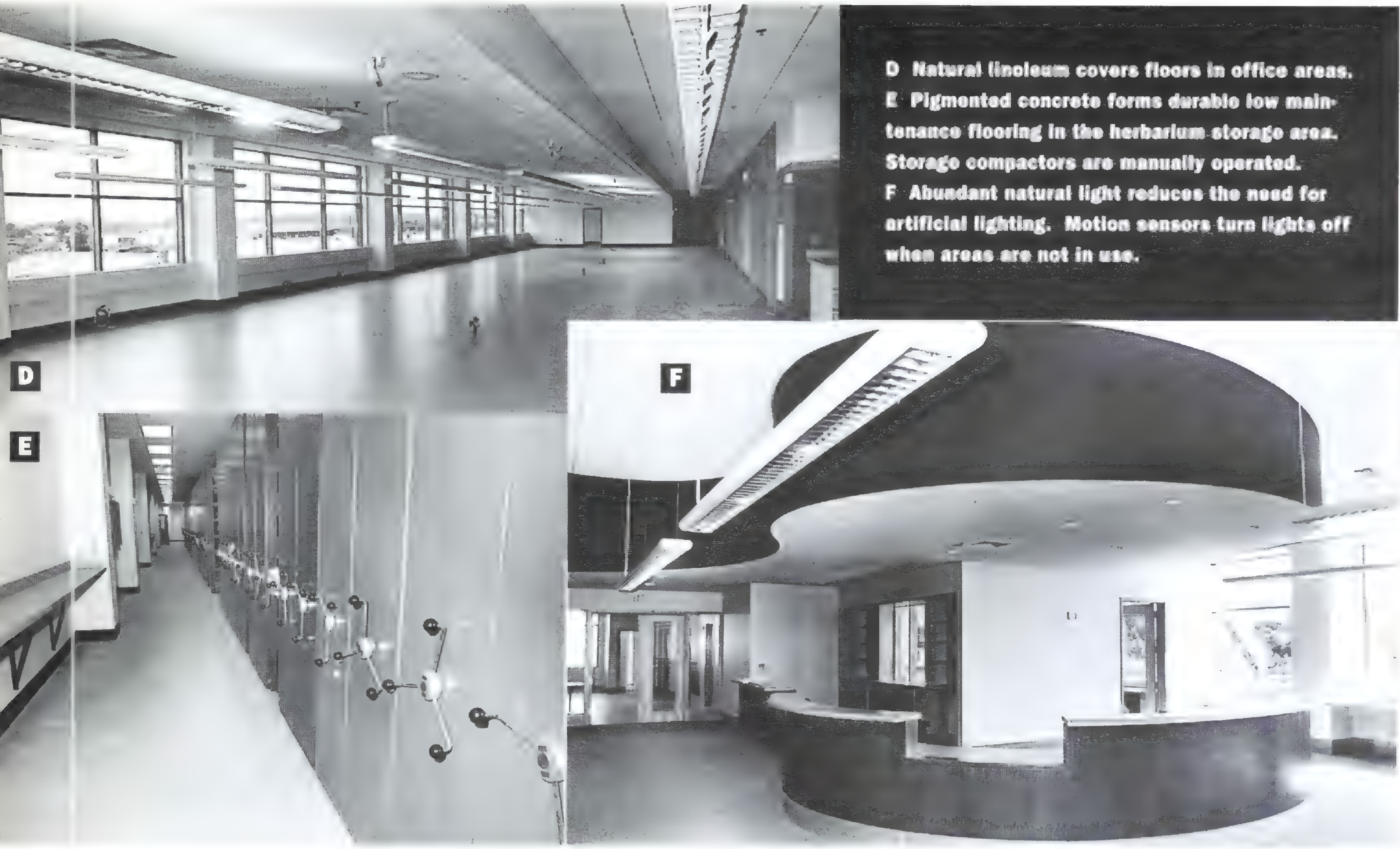
"These kinds of projects drive demand, and as more clients demand environmentally friendly buildings, the industry is coming up with new and better solutions. We're proud to be partners with the Garden in this effort."

Corbin and her colleagues did an enormous amount of research on every item used in the Monsanto Center. Materials were evaluated for a number of criteria, including use of renewable resources, the environmental impact of the manufacturing processes, longevity of the item, indoor air emissions, maintenance requirements, and future recyclability. The analysis even included the distance that materials would have to be shipped, aiming to reduce fuel consumption for freight handling.

Shipping can create an enormous amount of waste that often ends up in landfills. For this project, all suppliers were required to reduce or eliminate packaging by packing in reusable blankets whenever possible, and all disposable packing materials had to be recycled.

Weighing all of these criteria could be a difficult balancing act. "We had to include aesthetics and cost as well as the other factors," Corbin said. The architects also considered where an item might eventually end up. "We call this 'cradle to cradle,'" said Corbin. "Carpeting, for instance, is enormously expensive to recy-

As more clients demand environmentally friendly buildings, the industry is coming up with new and better solutions.



D Natural linoleum covers floors in office areas.
E Pigmented concrete forms durable low maintenance flooring in the herbarium storage area. Storage compactors are manually operated.
F Abundant natural light reduces the need for artificial lighting. Motion sensors turn lights off when areas are not in use.

PHOTOS BY CLIFF WILLIS

cle. We used carpet only in the library, where it is needed for sound control, and we chose fibers with the greatest possible longevity. It is solution-dyed nylon, which uses much less water and chemicals than post-dyed fiber. At the end of its useful life, the carpet in the research center can then be made into new products."

Most of the flooring in the service areas is durable, low-maintenance pigmented concrete. In the entrance lobby, the concrete is stained to harmonize with handsome central areas of wood flooring made from recovered end-grain fir wood blocks, a by-product of the door manufacturing industry.

Promoting sustainable resources helps to reduce the exploitation of natural areas all over the world.

The floors of offices and hallways are covered with linoleum, an all-natural product made of linseed oil and powdered cork oak wood pulp. With its jute backing, linoleum is all biodegradeable and extremely durable. Baseboards are made of natural rubber.

Most paints used in the building are low emission water-based formulas. Powdered coatings were used on painted metals, a process in which all overspray and unused powder is completely recovered for future use.

The result is a building as beautiful as it is friendly to the environment — easy to maintain, comfortable to inhabit, and setting a standard for others to emulate.

The Monsanto Center will be opened to the public next spring. Watch upcoming issues of the *Bulletin* for more on its sustainable features and furnishings.

first LOOK

L–R: Architect Ted Christner, Claudia Trautmann, and Jonathan Kleinbard, MBG deputy director

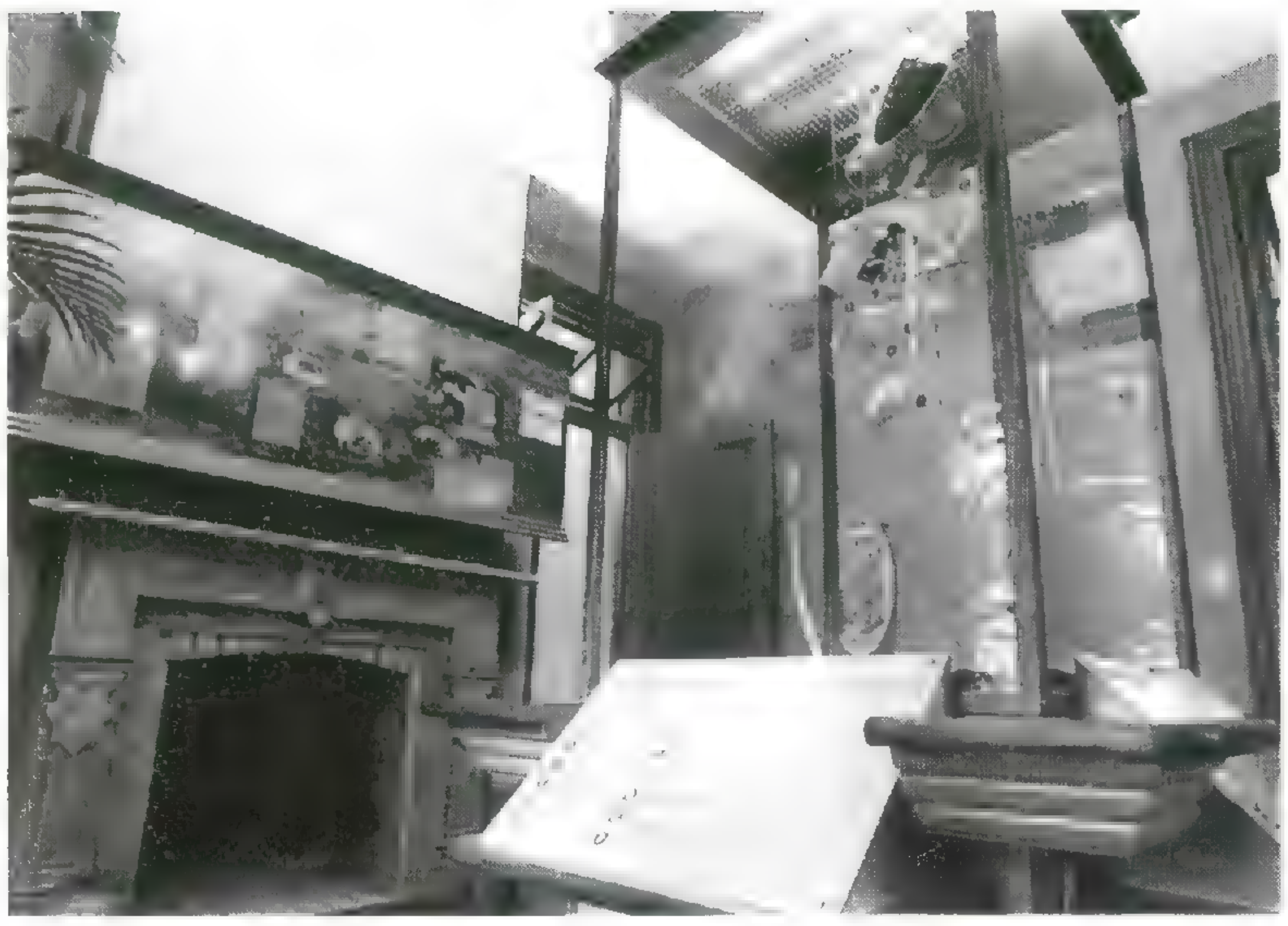
The "First Look" benefit in the new building on September 20 was a hit with one and all.

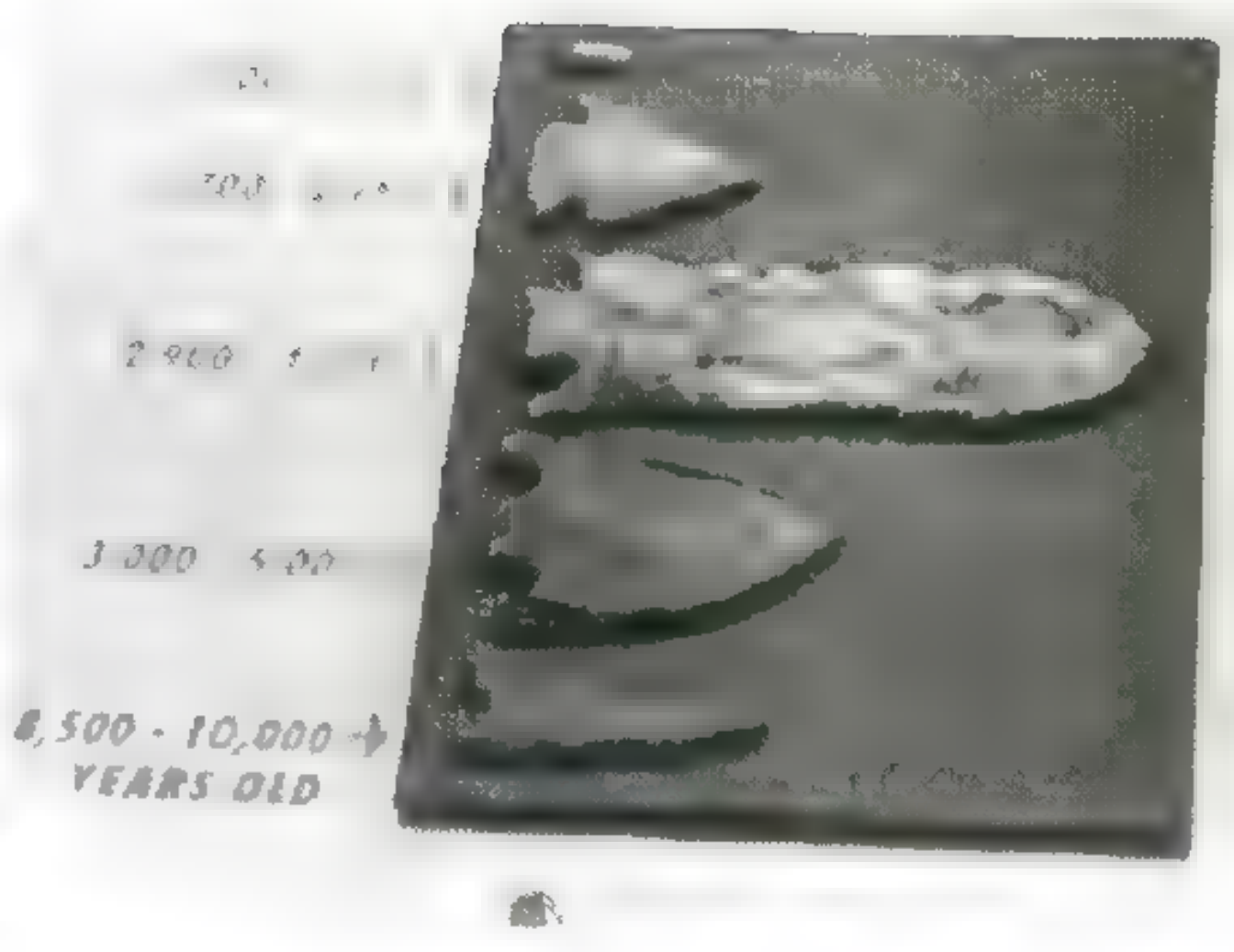
At right, architect Lou Saur (R) with Paul Brockmann, MBG director of general services (L).

PHOTOS BY TIM PARKER

L–R: Patricia Arnold, MBG director of development, Ellen Jones, Nancy Primm, and Mim Kittner.

PHOTOS BY TIM PARKER





"People on the Land" was developed in cooperation with the Missouri Department of Conservation. Above: Native American arrowheads are just a few of the artifacts left by early inhabitants at the Arboretum.

Visit "People on the Land" at the Bascom Manor House

THIS WINTER, take time to visit the Joseph H. Bascom Manor House at Shaw Arboretum. The 1879 brick home has been fully restored and is open to the public.

"People on the Land," an educational exhibit developed in cooperation with the Missouri Department of Conservation, occupies the downstairs rooms of the Manor House. The wonderful permanent display portrays the history of land use in the Meramec River Valley from pre-historic times to the present day. Ecological changes are viewed through the eyes of the people who lived on the land, including Native Americans, European settlers, farmers, and environmentalists.

The Manor House is open to visitors from 10 a.m. to 4 p.m. daily, closed on Mondays.

Whitmire Wildflower Garden

Even in wintertime, you can delight in the beauty of the Whitmire Wildflower Garden. This 20-minute video features beautiful seasonal images of one of the Arboretum's most popular attractions. Available at the Arboretum Visitor Center or the Garden Gate Shop, $14.00.

What's Up at the Arboretum

"Sustainable Building – Sustainable Living"

THE American Institute of Architects – St. Louis Environment Committee, in partnership with the Garden and the Arboretum, is hosting a second annual conference at the Garden on November 20, 21, and 22, 1997.

The conference will focus on large and small scale development, renewable energy sources, planning, and conservation and restoration of natural areas. Topics are aimed at architects, environmentalists, builders, contractors, and the general public.

Steven J. Strong, president of Solar Design Associates, Inc., described by Time magazine as one of the country's leading designers of solar homes, will be a featured speaker. Other speakers will include Dr. Daniel Lehocky of Sustainable St. Louis, architect Floyd Stein, Dr. James Trager, naturalist at Shaw Arboretum, and Dr. Peter H. Raven.

CLIFF WILLIS

Architect Steven Strong, left, attended a meeting at the Garden recently to discuss planning for the future visitor center at Shaw Arboretum. He is shown here with David Hicks, construction manager at the Arboretum. Hicks is one of the organizers of the sustainability conference.

The public is invited to attend Thursday evening and Saturday morning free of charge. The workshop on Friday requires a fee and advance registration. For more information or to register please call(314) 577-5141 or (314) 451-3512.

Arboretum Committee Welcomes New Members

This year the Arboretum Committee of the Garden's Board of Trustees was expanded to include participation by individuals who are not trustees of the Garden. The new committee members are L.B. Eckelkamp, Jr., S. Lee Kling, Daniel E. Richardson, Blanton Whitmire, and Donald Wolfsberger, all of whom have close ties to the Arboretum and the Gray Summit area. All are longtime supporters and upper level members of the Missouri Botanical Garden.

"We are very pleased that these individuals have agreed to serve on the Arboretum Committee," said William H.T. Bush, president of the Board. "Their knowledge of the Arboretum and its goals brings valuable expertise to our plans for the future."

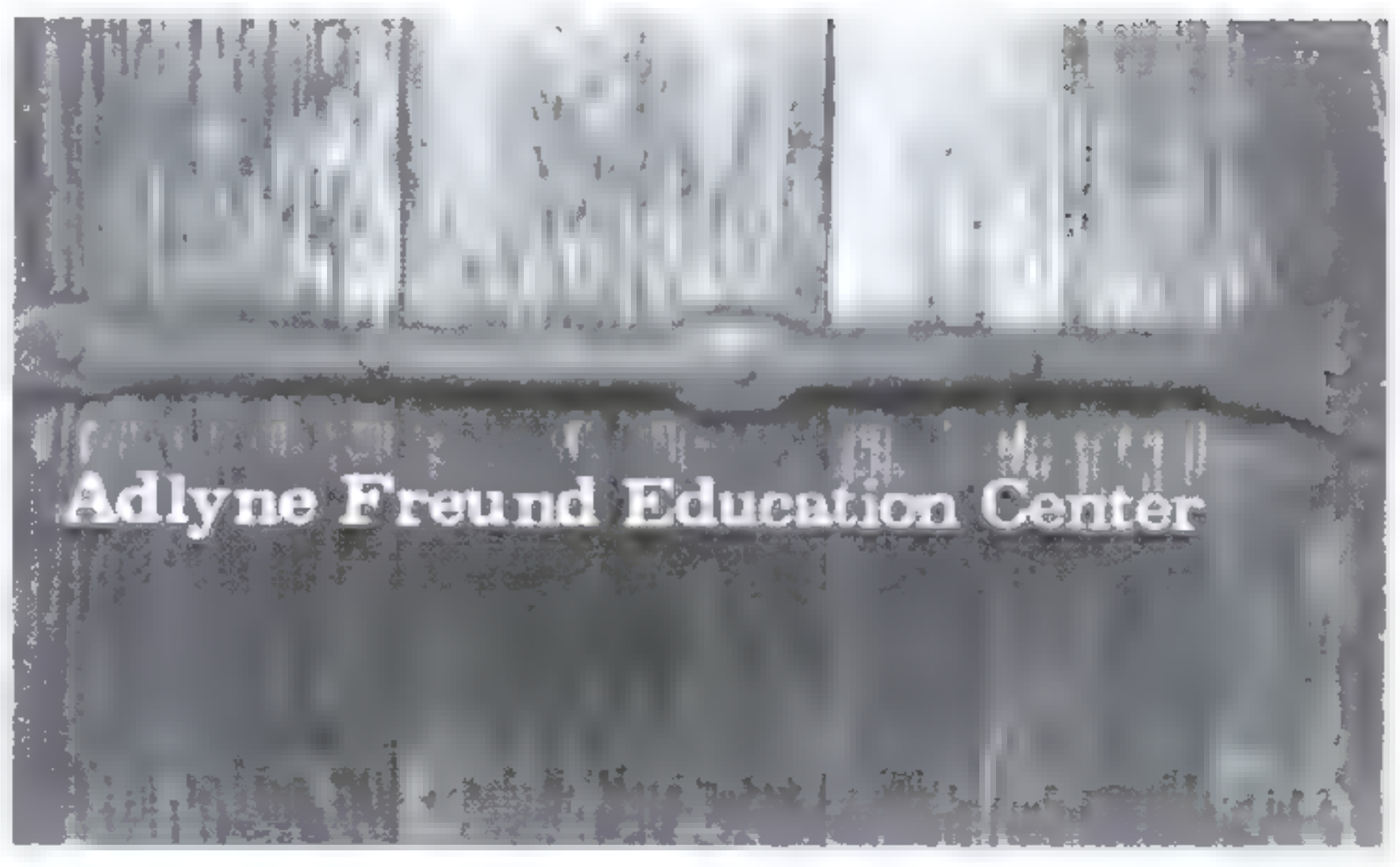
Congressman Hulshof Visits the Arboretum

U.S. Representative Kenny Hulshof of Missouri's ninth congressional district toured the Arboretum in October. He is shown here with John Behrer (left), Arboretum director, and Lydia Toth, manager of educational services. The staff acquainted Hulshof with the Arboretum's programs, facilities, and Master Plan, which will increase its service to the district.

Adlyne Freund Education Center To Be Renovated

SHAW ARBORETUM has announced plans to renovate the Adlyne Freund Education Center as the first phase of a new overnight educational facility. The project is made possible by four-year grants from the Norman J. Stupp Foundation, Commerce Bank, Trustee, and from Mr. and Mrs. Whitney R. Harris.

Shown at the Adlyne Freund Center (from left): John Behrer, director of Shaw Arboretum; Whitney and Jane Harris; Ann Sullins, vice-president and director of community relations for Commerce Bank, and Peter F. Mackie, executive vice-president, Investment Management Group, Commerce Bank.



Entrance to the Adlyne Freund Center

The late Adlyne Freund

PHOTOS BY TIM PARKER

In 1977, Mrs. Harris's mother, Adlyne Freund, made a substantial gift to complete acquisition of 220 acres of woodlands and meadows on the eastern edge of Shaw Arboretum. The property included a rustic lodge, which was named in Adlyne Freund's honor. The lodge is used as a classroom facility for a wide variety of outdoor classes and activities. Its location near the prairie, wetland, and Meramec River make it ideal for educational programs.

An overnight education facility is an important part of the Arboretum's Master Plan, and the Adlyne Freund Center will serve as an integral part of the facility. Renovations to the lodge will include the addition of a commercial kitchen, increased restroom facilities, and an expanded seating area. The improvements will not change the rustic appearance of the building, but it will allow the Arboretum to accommodate a much wider range of groups and programs.

Peter H. Raven, director, said, "We are extremely grateful to the Stupp Foundation and to Jane and Whitney Harris for their outstanding friendship for the Garden and the Arboretum over the years. This gift will greatly enhance our ability to educate visitors of all ages about the wonders of the natural world."

The Norman J. Stupp Foundation has supported the Garden and its education programs for many years and provides funding for the Stupp Teachers' Resource Center in the Ridgway Center. Mr. and Mrs. Harris are longtime supporters of the Garden and donors of the Jane and Whitney Harris Secret Garden at the Kemper Center.

Edward K. Love Conservation Foundation Supports Glade Restoration

THE spectacular beauty of native Missouri wildflowers is returning to the glades at Shaw Arboretum, thanks to ongoing ecological restoration by hardworking volunteers and staff. A recent three-year grant from the Edward K. Love Conservation Foundation provides funding for this important project, which will be expanded to include interpretive educational materials, tours, and classes.

The foundation has supported many major projects at the Arboretum, including development of the tallgrass prairie, the Master Plan, and a ten-acre plant nursery. The Martha Love Symington Native Shade Garden at the Kemper Center was also made possible by a gift from the foundation.

Volunteer lumberjacks helping to clear an Arboretum glade last winter. The logs are utlized for many projects at the Arboretum.

"Much of the Arboretum's progress over the last ten years is due to support from the Edward K. Love Conservation Foundation," said John Behrer, director of the Arboretum. "Our glade complex is one of the largest and most accessible in the St. Louis area, and we are very grateful to the Love Foundation for helping us to develop it as a major natural attraction and educational resource."

Glades have been called Missouri's deserts. They are a unique habitat with thin, dry soils that support a remarkable diversity of insects, birds, and native wildflowers. Modern fire control has allowed invasive species, especially cedars, to crowd out the sun-loving glade plants and the animals that depend on them, causing the native biological diversity of many Missouri glades to decline.

A Call for Outdoor Volunteers

Over the past two winters, Arboretum staff and volunteers have cleared approximately ten acres of glade habitat. The workers use low impact techniques to harvest the cedar trees, which are made into lumber and fenceposts. Prescribed burning is done with a trained crew of fire specialists, on days determined as safe by local fire authorities.

Glade restoration is heavy, dirty work, but the rewards are great. This winter the Arboretum staff is organizing Saturday work crews for December 13, January 17 and 31, and February 14 and 28. If you would like to be a part of helping to restore Missouri's natural heritage, please call the Arboretum at (314) 451-3512.

Education at Shaw Arboretum – Discovering Nature

EXPLORE the nighttime insect world with blacklights...net organisms from the pond...investigate a Meramec River gravel bar by canoe...dig into the past with an archeologist...collect maple sap for syrup making.... And that's just a sample of the ways you can learn about the natural world at Shaw Arboretum.

The Arboretum's 2400 acres are a wonderful outdoor classroom for children, adults, and families. From the tallgrass prairie with wildflowers and waving grasses, to the wetland teeming with wildlife, to the miles of trails through upland and bottomland forests, the Arboretum offers something for everyone interested in nature.

School Programs

Over 10,000 children participate in educational programs each year. Classes include aquatic ecology, forest ecology, sensory awareness, the tallgrass prairie, and the science of maple syrup. Small classes provide plenty of opportunity for hands-on investigations and inquiry-based learning. For the third year, the Arboretum is offering a collaborative course in aquatic ecology with Gateway Middle School, a St. Louis magnet school for science and math. This program is just one of the ways the Garden's Education Division works to improve science education in the St. Louis region.

Habitat Helpers

Habitat Helpers

Habitat Helpers, an ecology club now in its fourth year, offers area fifth graders the chance to spend one Saturday a month with Arboretum teachers. The days are packed full with activities designed to increase appreciation and understanding of the natural world. This year, students are helping to restore a woodland area adjacent to Pinetum Lake. Curiosity is encouraged — as one student said, "I just have some questions I need to answer!"

Teacher training in aquatic ecology

Teacher Training

Saturday training sessions help teachers learn to use the Arboretum with their students. The sessions train teachers in field techniques and ecology that can be used to supplement classroom studies.

Family Education

Armed with a trail guide and map, families can enjoy time together exploring the Arboretum. Have you found the entrance to the cave, or discovered the Roberts family cemetery, or happened upon the beaver as he busily cuts sticks for his dam on Brush Creek? Classes especially geared to families introduce some of these little known treasures.

Special Events

The annual Halloween Evening offers storytelling, a trail illuminated with jack-o-lanterns through the Pinetum, and hot cider served at trail's end. And the fall Prairie Day, co-sponsored with the Missouri Department of Conservation, features demonstrations, crafts, tours, games, food, music, live bison, and lots of family fun.

Tours for Adults

Activities for adults are available throughout the year. Informal walking tours teach natural history of the area, and classes sharpen skills in orienteering and photography. A multi-session archeology class digs into the Arboretum's past. A prairie restoration course teaches planning and planting techniques for large and small projects.

— Lydia Toth, manager of educational services, Shaw Arboretum

Persimmon Hill Antiques Sale Benefits Arboretum

THE recent sale of Early American antiques from the estate of the late Stratford Lee Morton realized substantial funds that will help support programs at Shaw Arboretum. The collection was sold at auction by Selkirk's in St. Louis and attracted collectors from all over the United States.

Mrs. Morton donated the 242-acre estate, called "Persimmon Hill," to the Garden upon Mr. Morton's death in 1970, with the provision that it always be preserved as a natural area. A portion of the estate, including the antiques, remained in Mrs. Morton's control until her death in 1987, at which time the antiques became the property of the Garden.

The decision was made to utilize some pieces from the collection in the newly restored Joseph H. Bascom Manor House. Opened to the public in 1996, the Manor House contains the "People on the Land" exhibit and provides offices and conference space for the Arboretum staff. In addition, a number of the antiques are on permanent loan to Faust Park, where they are displayed in the Governor Bates home. The rest of the collection was sold to provide funds for education and habitat restoration programs, priorities shared by Mr. and Mrs. Morton.

Stratford Lee Morton was a prominent St. Louis businessman with the Connecticut Mutual Life Insurance Co. He was also a civic leader, serving as president of the St. Louis Academy of Science from 1946 to 1948 and from 1952 until his death. He was a driving force in the establishment of the Museum of Science and Natural History which stood at Oak Knoll Park in Clayton. Mrs. Morton was a longtime member of the Garden and of the Boxwood Society of the Midwest.

John Behrer, director of the Arboretum, said, "Mr. and Mrs. Morton cared deeply about the environment and conservation of natural areas long before it was fashionable. We are very grateful for their generosity, and we think they would be pleased with the way we are using their legacy."

In Memoriam

Marion Kaeser Piper

MARION K. PIPER, an Emeritus Trustee of the Garden and a member of the Board since 1981, died August 13, 1997 at her home in Ladue. She was 81.

Mrs. Piper and her husband Vernon were married in 1949 They shared a strong commitment to the community and an abiding interest in preserving the history of St. Louis for future generations. Two of the major features in the Garden's Historic District, the Maze and the Observatory, were gifts from Mr. and Mrs. Piper.

The Jennie Latzer Kaeser Memorial Maze, given in memory of Mrs. Piper's mother in 1986, is one of the most popular places in the Garden, especially with children. The Piper Observatory overlooks the Maze and recreates a similar structure built by Henry Shaw in Tower Grove Park. Mr. and Mrs. Piper gave the Observatory in memory of Mr. Piper's parents, Frank and Julia Mohlman Piper. It was dedicated with a gathering of their family in July, 1996.

At the dedication of the Maze in 1986, Mrs. Piper recalled that she and her husband often brought their three children to visit the Garden when they were growing up. "It was interesting, beautiful, and a place children could enjoy while we explored what interested us," she said. Mrs. Piper was an enthusiastic gardener, and her mother, for whom the Maze is named, often presented gardening programs for community organizations. One of Mrs. Piper's daughters, Jane Gleason, is a past chairman of the Tower Grove House Historical Committee.

Mrs. Piper was a member of the board of Pet, Inc. from 1971 to 1979, becoming the first St. Louis woman to sit on the board of a major corporation. She served in the Navy during World War II as a lieutenant in communications with the WAVES and was a home economics adviser for the University of Illinois Extension Service following the war.

A native of Highland, Illinois, Mrs. Piper earned her bachelor's degree from the University of Illinois at Champaign-Urbana and a master's degree from the Teachers College of Columbia University in New York. She taught home economics at the University of Missouri-Columbia from 1939 to 1942.

In addition to her activities with the Garden, Mrs. Piper very active in the community. She was a second-generation member of the board of the Louis Latzer Memorial Public Library in Highland, Illinois; served on the board of directors of the Campbell House Museum for many years; and was a trustee of McKendree College in Lebanon, Illinois. She was a member of Gamma Phi Beta sorority, the DQ chapter of PEO Sisterhood, and the Eugene Field chapter of the Questers.

Peter Raven said, "Marion was devoted to the Garden, the community, and to her family. She was a gracious friend and a dedicated volunteer, and her generosity to the Garden and to many other organizations was extraordinary. We will miss her greatly."

CLIFF WILLIS

Marion Piper on the deck of the Piper Observatory overlooking the Jennie Latzer Kaeser Memorial Maze.

CLIFF WILLIS

The Kresko family, shown at the dedication (from left): Anne, Bob, Dorotha Nelle, Tim, Walter (in front), and Robert C. Kresko.

Kresko Family Victorian Garden Is Dedicated

FAMILY, friends, and staff joined Robert and Dorotha Nelle Kresko for a reception to dedicate the new Kresko Family Victorian Garden on September 24. The new garden is a gift from Mr. and Mrs. Kresko and their children.

The colorful new display recalls a formal parterre built by Henry Shaw near the old Flora Gate entrance and is based on the fashionable garden designs of Victorian England. It is located on the east side of Tower Grove House.

Robert Kresko, a trustee of the Garden, recalled growing up near the Garden and how much he enjoyed visiting as a boy. Peter Raven extended appreciation on behalf of every member of the Garden, thanking the Kreskos for making it possible to add this magnificent new feature to the Historic District.

On October 2 the Garden bade farewell to the giant praying mantis that had stood atop the John S. Lehmann Building since June 11, 1993. The 28-foot sculpture was on loan from its owner and creator, Robert Cassilly. The beloved bug may have moved, but we can still enjoy visiting it — the praying mantis now guards the door at Cassily's new City Museum in downtown St. Louis, where a former factory houses architectural, interactive, and children's displays.

Home Gardening

A PRIMER ON PRUNING SHRUBS

PRUNING SHRUBS correctly takes a little bravery at first. With practice it can be creative and fun, and your plants will certainly benefit.

Winter is a good time to sharpen the pruning shears and loppers and get to work. For inspiration and moral support, come to the Kemper Center for Home Gardening and see the hedge display, boxwood renovation demonstration, and some examples of pruning styles on shrubs that are now through their third season.

Why Prune?

Pruning controls size and shape, crossing branches, flowering, and fruit development. It also removes dead, diseased, weak, or broken limbs, and can stimulate new growth. A neglected, overgrown plant can be impossible to correct, so begin the process early, before plants reach mature size.

Selecting the right plant for the right spot is critical. Before you plant, match the space to the mature plant's form and size. If space is limited, consider dwarf shrubs which require almost no pruning. This is especially important for foundation plantings and low maintenance objectives.

When to Prune

For dead, diseased, and damaged limbs, the best time to prune is always as soon as possible. This keeps disease from spreading and limits further damage.

Pruning healthy plants depends upon their type. Evergreen shrubs are commonly pruned in the spring through early summer. Spring flowering shrubs form flowers on the previous season's growth and should be pruned after blooming.

Summer and fall blooming shrubs form flowers on new or current growth and should be pruned either in late winter or early spring, before leaves emerge. The subsequent growing season will begin the recovery phase, with new growth coming from dormant buds in the bark. The new growth must be managed throughout the season, trimming suckers and water sprouts on the main stem as they arise.

If you are trying to shape an overgrown plant and work it back to a managable size, the best time to prune is in winter or early spring when the branch structure is visible. Pruning in late summer to correct major problems is not advised, since it may stimulate tender growth that will not have time to harden off before winter.

Making major branch cuts is sometimes the only solution, but it will set the plant back for several seasons. Plan to extend the work over about three years, removing no more than a third of the branching structure at a time.

Pinching or Heading Back

Pinching the growing tips back to a healthy bud is beneficial for plants that tend to grow slowly and do not sprout new growth readily from older branches. This group includes azaleas, rhododendrons, pines, and other needled evergreens. If major corrections are required, do it over a period of three years and use the one-third rule.

Heading back is a more severe form of pinching, where branches are cut back to healthy, outward facing buds to encourage new branch growth. This method is useful when you want to control growth over walkways or keep plants from growing into each other.

Winter is a good time to sharpen up those shears. Take heart — if you do it right, your shrubs will thank you for it.

Shearing is a less drastic form of pinching or deadheading, commonly practiced when shaping a hedge. A small portion of new leafy growth is trimmed off uniformly over the plant.

Thinning

Thinning involves cutting a branch back to the main stem to let light penetrate into the interior. This helps the plant avoid developing naked branches and “knees” in lower and inner areas.

Rejuvenation

This radical method removes all growth back to the ground, forcing new shoots to emerge from the crown around the soil line. It can be done all at once or in stages by removing the oldest stems each year for two or three seasons. Then thin annually to keep new suckers vigorous. This method is suitable only for certain types of plants.

Needled Evergreens

The most common needled evergreens for landscaping are yews, junipers and arborvitae. The typical pruning style used for these is heading back, where the ends of branches are trimmed off part way down the new growth. This type of shearing can be done any time, but preferably by the end of August. This creates a bushier plant as new buds form just beneath the cut.

If this is all you do to your yews, junipers, or arborvitae, after a while you will notice a dead zone in the interior of the shrub. To prevent this, consider using a thinning cut every other year, made deeper down into major limbs and at random areas throughout the plant. This will open up the center to light, which stimulates new growth inside the canopy. Thinning should be done in April.

Yews can be cut back more severely than junipers, as they are apt to sprout from buds buried in older wood. For junipers and arborvitae, naked stubs will not be able to sprout new branches. If an old juniper or arborvitae needs drastic pruning, you might consider replacing it entirely.

Mugo pines and other needled shrubs can be pruned, but sparingly. Prune out half of the new growth, or “candle,” when has reached full development, probably in June. This technique can be used on trees like pine, spruce, fir, and hemlock, but the best recommendation is to avoid pruning needled evergreens if at all possible. These plants are much more pleasing when left unsheared, and careful consideration should be made from the very beginning to locate them where pruning will be minimized throughout their life. If severe pruning is necessary, note that spruce will recover from cuts into two-year-old wood, and fir can recover from cuts into three- or four-year-old wood.

Broadleaf Evergreens

Azaleas and rhododendrons are usually pinched to remove the spent blooms. This increases the number of flower buds set for the next season and stimulates branching at the terminal ends of the limbs. Cutting back into the bare stems will result in a dead stub. Major cuts should be done to shape the plant, but not to rejuvenate growth.

Hollies and mahonias can withstand heavier pruning. Mahonias can be cut back to the ground to stimulate an entirely new plant. Hollies are commonly pruned in November or December when the branches and berries are used for decoration. American holly can be cut back up to 30 to 40 percent and recover well. Shrub hollies can be deadheaded or thinned in the spring before new growth begins. Berry production may be affected, depending upon whether the plant is male or female.

Deciduous Flowering Shrubs

Spring flowering plants, including azaleas, lilacs, some viburnums, mockoranges, spring blooming spirea, Japanese quince, and forsythia bloom on old wood formed in the previous season. These should be deadheaded or thinned after they flower in the late spring to early summer. After pruning, they will develop new growth that will form flower buds for next season. If you prune before they flower, you will remove all the flower buds and it might take two seasons for the shrub to recover.

Forsythia is one plant that should be pruned sparingly. Their drooping habit is best left to develop naturally. Remove only dead wood, crossing branches, and old growth.

Summer and fall blooming shrubs such as St. John's wort, weigela, crepe myrtle, Rose-of-Sharon, Japanese spirea, peegee and oakleaf hydrangea, sand cherry, bluebeard, summer-sweet, sweetspire, butterfly bush, bottlebrush buckeye, and roses bloom on new or current season wood. Prune them in the winter or early spring before new growth begins.

Some can be cut completely back to the soil line using the rejuvenation technique. This works only for certain plants such as bluebeard, shrub-type dogwoods, oakleaf hydrangea, St. John's wort, spirea, honeysuckle and glossy abelia. If you are growing a plant that suckers profusely from the base, it is a good candidate for rejuvenation every three to five years.

A common mistake in our area is cutting big leaf hydrangea back to the ground. Only some of the branches should be removed each season; removing all of the branches to the ground will reduce flowering for one or two seasons.

Hedges

Hedge plants are sheared or pruned several times a year to achieve a more formal shape and look. Making a hedge should be done over a series of years. Shape the planting so that the base is broader than the top, creating a pyramid shape. If the opposite happens, the top will shade out the base, causing a loss of foliage at the bottom that is tough to regenerate if left for several seasons.

In addition to shearing or deadheading the growing tips, make some thinning cuts to open up the center of the hedge and allow more light to filter down to the base. This is especially important for privet, barberry, and boxwood, which tend to form very dense leaf canopies as a result of shearing. With yews and Foster hollies, naked lower portions always seem to develop, especially on shaded sides. Try planting low growing shrubs at the base.

— *Steven D. Cline, Ph.D.*
Manager, Kemper Center for Home Gardening

1997 Christmas Tree Recycling

December 26, 1997 — January 19, 1998

Once again the Garden is teaming with other organizations to assist the annual Christmas Tree Recycling Program sponsored by the *St. Louis Post-Dispatch*. Since its inception in 1990, residents of the St. Louis metropolitan area have dropped off more than 400,000 Christmas trees at area collection sites, diverting a mountain of waste that previously ended up in landfills.

Most of the trees are shredded and converted to mulch, which is made available to the public free of charge. Other trees are taken to parks and conservation areas, where they are added to brush piles to enhance wildlife habitats or dropped into lakes to create protected areas for fish.

Call the Garden's Master Composter Hotline, (314) 577-9555, Monday through Friday, 9 a.m. to noon, for information about recycling Christmas trees and other yard waste. For a list of drop-off sites for Christmas trees, watch for ads in the *Post-Dispatch* or call Post Line at (314) 923-2323 and press #5300, then follow the instructions.

TIM PARKER

The Newest St. Louis Ram — "Who are ewe?" seems to be the question on the mind of the ram standing guard at the Kemper Center. The newest addition to the flock of life-size sheep sculptures is one of a limited edition in epoxy stone and bronze from the Greenberg Gallery of St. Louis.

A Directory of Regional Plant Societies is published in the January and July issues of the *Bulletin*. For information, please call the Kemper Center for Home Gardening, (314) 577-9440.

Don't forget to call HortLine, (314) 776-5522 for answers to gardening questions 24 hours a day. For an up-to-date listing of "Plants in Bloom" at the Garden, press 3 when you call HortLine.

Calendar

See the Holiday Wreaths Exhibit in Monsanto Hall.

November 26 — December 28

Holiday Flower Show: "Toyland in Bloom"

9 a.m. to 5 p.m. daily, Orthwein Floral Hall. Toyland comes alive with giant nutcrackers, a rocking horse, a jack-in-the-box, and a real electric train that encircles a snowy village to delight the young and the young at heart. Over 3,000 colorful plants include poinsettias, amaryllis, Christmas peppers, gloxinias, begonias, cyclamens, and paperwhites to bedazzle the eye and delight the senses. Admission: $2 adults; $1 seniors age 65 and over; free to children age 12 and under; free to members.

November 25 Tuesday

Members' Preview

5 to 8 p.m., Ridgway Center. Entertainment, cash bar. Dinner buffet available in the Gardenview Restaurant, $10.95 per person, no reservations. Garden Gate Shop will be open. For members only.

Special Winter Schedules

- Trams will operate on a reduced schedule November through February and will leave the Ridgway Center at 10 a.m., 10:30 a.m., 2 p.m., and 2:30 p.m.
- Free Walking Tours will be offered daily by the Garden Guides. Meet at the ticket counter at 1 p.m.
- The Garden Gate Shop, Tower Grove House, and the Kemper Center for Home Gardening are closed on Thanksgiving Day, Christmas Day, and New Year's Day.
- The Garden is closed on Christmas Day.
- Tower Grove House is closed on December 1 and during the month of January.
- Unannounced schedule changes may occur due to weather and other conditions.

November 1 Saturday

Photographs by Marianne Pepper

9 a.m. to 5 p.m. daily through December 31, at the Kemper Center. Polaroid emulsion transfers by St. Louis artist Marianne Pepper portray wonderful views of the Garden. Free with Garden admission.

November 6, 7 & 8
Thursday — Saturday

Holiday Pre-Sale

9 a.m. to 6:30 p.m. Thursday & Friday, 9 a.m. to 5 p.m. Saturday. Garden Gate Shop. Members take 20% off.

November 12 Wednesday

"Meetings with Remarkable Trees"

6 p.m., Shoenberg Auditorium. Join Thomas Pakenham, award-winning historian and chairman of the Irish Tree Society, for a look at some of the most remarkable trees of Britain and Ireland. Luminous color photographs, literate, colorful text, and comprehensive maps make his new book a delight. Book signing follows the lecture. Free admission.

November 15 Saturday

America Recycles Day

9 a.m. to 4 p.m., Monsanto Hall. Master Gardeners will be on hand with displays and information on composting and recycling in St. Louis City and County. Win free bags of MBG Compost and enter a national drawing to win a three-bedroom home built with recycled materials! Free with Garden admission.

November 20 — 22
Thursday — Saturday

"Sustainable Building–Sustainable Living"

A conference of interest to architects, builders, environmentalists, and the general public. See page 6 for details.

November 24 Monday

"Carolyn Roehm's Passion for Flowers"

11 a.m., Shoenberg Auditorium. Designer Carolyn Roehm shares the style and techniques for creating splendid seasonal floral arrangements. Book signing follows the lecture and demonstration. Seating is on a first-come, first-served basis; free admission.

November 24 Monday

Holiday Wreaths Exhibit

9 a.m. to 5 p.m. daily through January 1, Monsanto Hall. Free with Garden admission. See page 14.

December 3 & 4 Wednesday & Thursday

Carols in the Garden & Candlelight Tours

5 to 9 p.m. Includes the Tower Grove House Candlelight Tour, 4:30 to 8:30 p.m. See back cover for details.

December 11, 12 & 13 Thursday — Saturday

Holiday Sale

9 a.m. to 7 p.m. Thursday & Friday, 9 a.m. to 5 p.m. Saturday. Garden Gate Shop. Members take 20% off.

December 21 Sunday

Chanukah – Festival of Lights

11 a.m. to 5 p.m., Ridgway Center. First St. Louis event celebrating the 50th anniversary of the State of Israel on April 30, 1998. Activities include an exhibit of the 9th copy of the Dead Sea Scrolls, a menorah lighting ceremony and exhibit, Israeli street bazaar and cafe, Kramer Marionettes, music by Tommy Goldenberg & Pete Keiser, Shir Ami Singing Group, children's games and crafts, Israeli folkdancing, attendance prizes, and a special performance at 4 p.m.by the Circle of Jewish Music. Tickets for the Circle of Jewish Music may be purchased at the door one half hour before the performance, $5 per person. The celebration is free with Garden admission.

December 27 Saturday

Kwanzaa – Festival of the First Fruits

11 a.m. to 5 p.m., Ridgway Center. Kwanzaa pays tribute to the rich cultural roots of Americans of African descent, celebrating the community values upon which African culture is based. Highlights include the Kwanzaa Feast Table, ceremony of the seven principles of *Nguzo Saba*, storytelling and African drums by Kenya Ajanaku, African crafts and games for all ages, terrarium workshop for children, display of tropical foods and spices, and cooking demonstrations at the Kemper Center. Free with Garden admission.

continued below

January 3, 4 & 5, 1998

Pre-Inventory Sale

9 a.m. to 5 p.m. daily, Garden Gate Shop.

Members' Days

On Members' Days, Garden members receive free tram rides, additional discounts in the Garden Gate Shop, and 10% off in the Gardenview Restaurant.

November 8 Saturday

Holiday Decorating

11 a.m., Shoenberg Auditorium. Join the folks from The Silkworm as they demonstrate how to create beautiful decorations for the holidays. Seating is on a first-come, first-served basis. Free, for members only.

December 6 Saturday

YMCA Boys Choir

1 p.m., Shoenberg Auditorium. The YMCA Boys Choir presents a choral concert of wonderful holiday music. Seating is on a first-come, first-served basis. Free, for members only.

A Victorian Holiday at Tower Grove House

December 2 - 31

Decorated for the Holidays

Henry Shaw's country home is decked out in authentic Victorian splendor. The House is closed for decorating on Monday, December 1, and reopens on Tuesday, December 2 for tours, 9:45 a.m. to 4 p.m., every day except Christmas. Admission: $2 adults, $.50 children ages 6 to 12, free to members.

December 3 & 4 Wednesday & Thursday

Candlelight Tours

4:30 to 8:30 p.m. Admission is $13 per person and includes "Carols in the Garden." See back cover for details.

December 8, 9, 11, 12

Holiday Luncheons

Noon: Tower Grove House Auxiliary will serve special holiday luncheons in the Tea Room. Advance reservations are required; please call (314) 577-5150 beginning 9 a.m. Monday, November 10. Cost is $15 per person, and payment must be received by December 1. For information and reservations for Tea Room Luncheons during November, please call 577-5150.

Holiday Wreaths Exhibit

November 24 — January 1

It's a holiday tradition — a magnificent display of wreath decorations created by some of the finest floral designers in St. Louis. Enjoy it daily in Monsanto Hall! 1997 exhibitors include:

Alex Waldbart Florist • Baisch & Skinner Wholesale Florists
Botanicals on the Park • The Bug Store • C.M. Designs
Flower Depot Ltd. • Kenary Park Florist & Gifts • Ladue Florist
Lee Russo Design • My Secret Garden • Studio P
Surprise Florist • Petals by Irene
Schnucks • The Silkworm

The Members' Entry Court Garden

Bricks Keep Family History Alive

CLIFF WILLIS

On September 9, the Garden welcomed this year's brick donors to a lovely sunset reception held at the Kemper Center. To date, about 1,700 named bricks have been placed in the Members' Entry Court Garden in honor of family and loved ones.

Bernice and Clarence Hogg, shown at the party with their brick (left), have a long history with the Garden. In the 1860s, Mrs. Hogg's grandmother visited the Garden on her honeymoon, which was a bumpy half-day's carriage ride into the country. The newlyweds arrived just as the gates were being locked and appealed to the gatekeeper, who allowed them to enter and enjoy a romantic sunset carriage ride through the grounds before their long trip home. We hope everyone who visits the Garden cherishes their own happy memories.

Behind the Scenes

Mary Krchma Is Named Membership Manager

CLIFF WILLIS

Mary Krchma, who joined the Development Division in May, has been appointed the new manager of membership services. Mary came to the Garden in 1992 as a development assistant and became an assistant in public relations the following year. From 1995 to 1997 she coordinated the Garden's public events, including the annual Japanese Festival, Carols in the Garden, Whitaker Jazz Festival, and Garden Expo.

Mary grew up in Kansas City and has lived in St. Louis with her husband Steve and three daughters since 1980. She went back to school after her children were born and earned a bachelor's degree in journalism cum laude from Northern Illinois University. While living in Chicago, she served a public relations internship at the Morton Arboretum. She has also worked as program coordinator for the Alumni Association at University of Southern California. Mary loves gardening, especially herb gardens, and studied ikebana while her family was living in Hawaii.

"The members and the Members' Board are such a very important part of the Garden," Mary said, "I am absolutely delighted to be working with all of their activities."

Gift Memberships — Save 20%

December 11, 12, & 13
Thursday & Friday: 9 a.m. to 7 p.m.
Saturday: 9 a.m. to 5 p.m.

During the December Holiday Sale in the Garden Gate Shop, you may purchase a regular $50 Garden membership for just $40; or purchase a $40 senior membership for just $32. Enjoy your special 20 percent members' discount right away at the Garden Gate Shop sale, or give a gift that will delight friends and family all year long. Each person who receives a gift membership will be sent a set of six Missouri Botanical Garden notecards, with a holiday greeting from you.

CLIFF WILLIS

1997 Best of Missouri Market —

Thank You One and All!

The sixth annual "Best of Missouri" Market was a tremendous success thanks to the hard work of a corps of volunteers, including the entire Members' Board. Our thanks go to each and every person who attended the Market, to the advertisers who made the program book possible, and to the generosity of our sponsors:

GrandPa's
Commerce Bank
Premier Homes
Pepsi
KMOX
NationsBank
St. Louis County Farm Bureau
Pershing Charitable Trust
Missouri Department of Agriculture – Agri Missouri Program

THE PETER H. RAVEN SOCIETY

In 1996 the Garden celebrated Peter H. Raven's 25th anniversary as director. In honor of that milestone, the Board of Trustees has established the Peter H. Raven Society to honor individuals who make exceptional unrestricted gifts to the Garden annually, for at least three to five years. Their generosity helps to ensure the Garden's strength and service for future generations.

CHARTER MEMBERS

As of October 1, 1997

Mr. and Mrs. Adam Aronson
Mr. Howard F. Baer
Mrs. Joseph H. Bascom
Mrs. Albert G. Blanke, Jr.
Mr. and Mrs. A. John Brauer III
Mr. and Mrs. Stephen F. Brauer
Mr. and Mrs. William H. T. Bush
Mrs. Richard B. Cronheim
Dr. and Mrs. William H. Danforth
Mr. and Mrs. Zander Duffield
Mr. and Mrs. Sam Fox
Mr. and Mrs. Whitney R. Harris
Mr. and Mrs. Robert R. Hermann
Mrs. Jane S. Jacobs
Mr. and Mrs. David W. Kemper
Mr. and Mrs. Robert E. Kresko
June M. and Fred S. Kummer, Jr.
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Carolyn W. and Joseph O. Losos
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Mr. and Mrs. A. Bryan MacMillan
Mr. and Mrs. William E. Maritz
Mr. and Mrs. James S. McDonnell III
Mr. and Mrs. David W. Mesker
Mr. and Mrs. Jefferson L. Miller
Mr. and Mrs. Fred A. Oberheide
Mr. and Mrs. William R. Orthwein, Jr.
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Mr. Sydney M. Shoenberg, Jr.
Mr. and Mrs. Robert Brookings Smith
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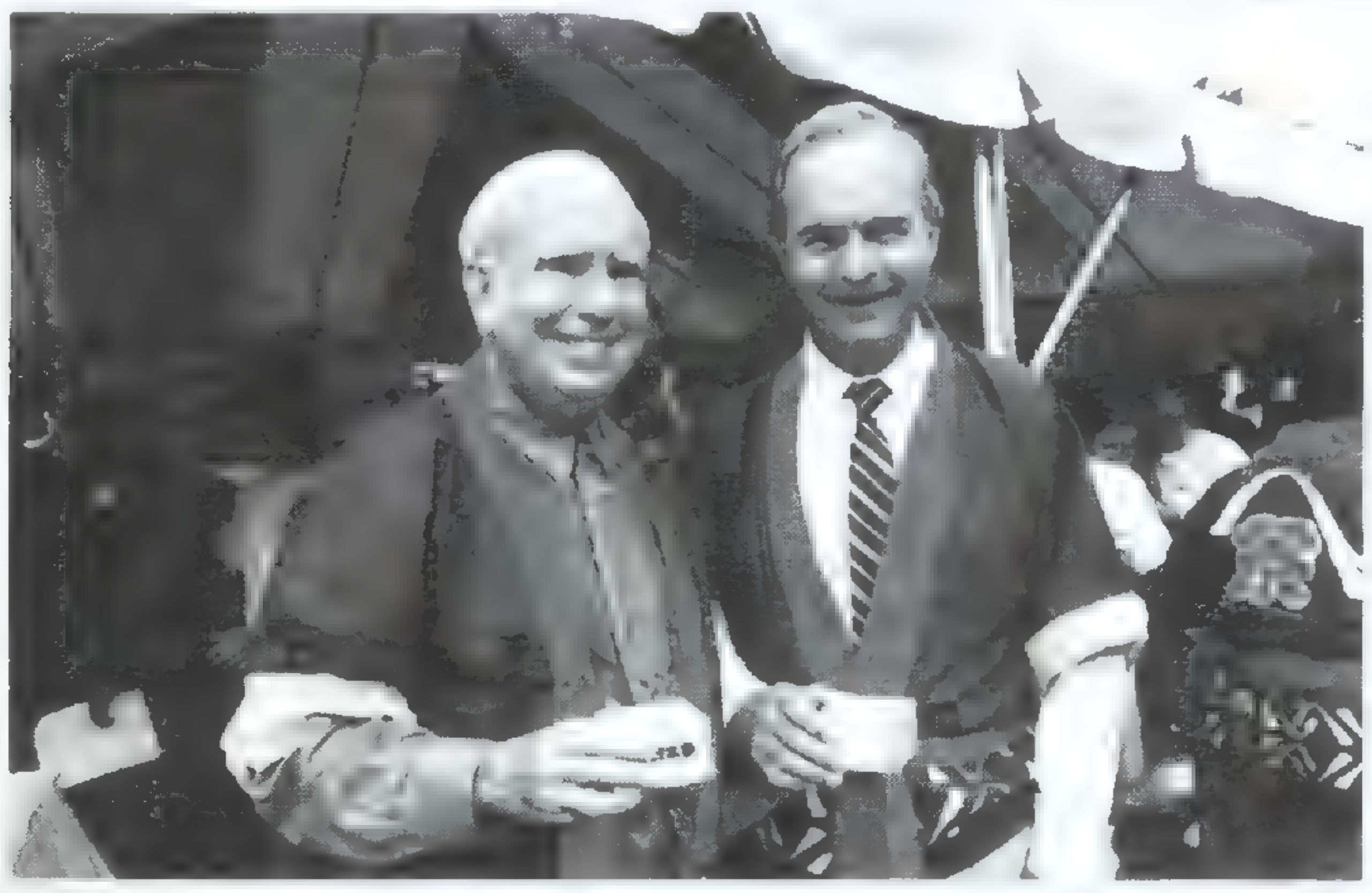
Mr. and Mrs. Andrew C. Taylor
Mr. and Mrs. Jack C. Taylor
Mr. and Mrs. Jack E. Thomas, Jr.
Mrs. Jack L. Turner
Mr. and Mrs. John K. Wallace, Jr.
Mr. and Mrs. Blanton Whitmire
Mr. and Mrs. O. Sage Wightman III
Anonymous

1997 Japanese Festival Highlights



OPENING CEREMONY — William H. T. Bush, right, president of the Board of Trustees, welcomed visitors to the opening ceremony on Saturday, August 30. Bush and director Peter Raven are shown here enjoying some ceremonial sake. The 1997 Japanese Festival welcomed some 26,500 visitors over the Labor Day weekend in spite of occasional rain showers, and our thanks go to all who helped make it a success.

TWA SPONSORSHIP — Trans World Airlines, Inc. was a generous contributor to the festival, sponsoring the Ikebana program and donating air trip ticket vouchers for auction. Pictured at the festival are (from left): Diane Rohrer, hanamizuki dancer; Jack Coad, chair of Japanese Activities Committee; Michelle Patke, TWA Corporate Communications, with a model of the new TWA 757; and Kazuko Rohrer, representing Ikebana International.

CLIFF WILLIS

Shown at the opening cocktail soiree on October 9 are (from left:) Jill Dowd, Norma Silber, manager of Tower Grove House, Louise Gazzoli, and Kina Shapleigh.

"Maison en Fleurs"

Ladue Garden Club Event Benefits Tower Grove House

Tower Grove House was dressed in elegant floral finery by fifteen of the top floral designers in St. Louis on October 10-12. Sponsored by the Ladue Garden Club, the display and daily tours were presented to benefit Tower Grove House, Tower Grove Park, and other community projects of the club. "We are extremely grateful to the Ladue Garden Club for presenting this beautiful event at Tower Grove House," said Peter H. Raven, director. "It was a wonderful showcase for St. Louis florists and for the House, and we were delighted to welcome so many visitors to enjoy Henry Shaw's country home."

Participating florists included: A Floral Gallery, Botanicals on the Park, Chadfield Garden, C.M. Designs, Dale Rohman Enterprises, Don Warden's Workshop Studio, Jody Delf Flowers, Ken Miesner's Flowers, Ladue Florist, Party Arts, Petals by Irene, Randy Felkey Florals, The Silver Garden, Trappings – Linda Levy Katz, and Widlflowers.

Gateway Greening Volunteers: The "Crabby Old Boys"

GATEWAY GREENING is blessed with a hardy and reliable group of volunteers fondly known as the "COBS," or "Crabby Old Boys." They are all retired but that doesn't slow them down! "I'll be 70 in April," said Harry Ruffin. "When you retire you have to do something and use the skills you spent your lifetime learning." Jim Durbin added, "Every one of the jobs I've done with Gateway has been fun or I wouldn't do it."

The "Crabby Old Boys" (from left): Jim Durbin, Aaron Hooks, Lew Lapides, Bill Riggs, Harry Ruffin, and John Wright.

Kathy Bosin, program manager at Gateway, said, "They're some of the best volunteers in the world. We just point them in the direction of a project and turn them loose. They have their own resources and ways of doing things — with all their years of experience, we let them be just as crabby as they want!"

Don Shipp, a community social work intern from St. Louis University, recalls working with the COBS. "You'd better not make a mistake, or there will be six rapid fire cracks about your age, physical condition, and what you had for breakfast!"

The COBS began by building and distributing Grow Labs to schools. Grow Labs have three lighted shelves and are used to grow seedlings and study plants. The COBS have branched out to direct garden installations around the city and county, and recently they built special raised beds for the Missouri School for the Blind.

Harry Ruffin takes on projects at the Bell Community and Demonstration Garden, where he has become expert at recycling used materials. He constructed a barbeque pit and planter boxes from recovered concrete blocks, and built ornamental plant stands from wood scraps.

Sometimes there are as many as three projects underway simultaneously, so the COBS are experts at coordinating people and tools. This spring they hardened off 15 thousand seedlings that had been raised in greenhouses by students at North County Tech. To avoid the work of hauling individual flats under cover each night, they developed a system using carpet remnants to slide multiple flats at once. With perfect timing, they delivered the seedlings to the Bell Garden for distribution to the 80 community gardens and greening projects coordinated by Gateway.

Are the COBS accepting new members? "Always," said Jim Durbin. "We guarantee that anyone interested in community service who can give a few hours a week will be accepted. We don't ask people to overextend themselves. We do what we can, safety first." If you would like to join the COBS, please call Gateway Greening at 577-9484.

Horticulture Hosts Summer Interns

EACH SUMMER the Garden provides professional working experience to a group of interns in the Horticulture Division. Students of horticulture and related fields from all over the world compete for the internships.

1997 summer interns (front row, from left): Meridith McAvoy, Lorinda Pittsenbarger, Cindy Boos. Back row, from left: Marcelo Oliveira, Will Perez, Jason Reeves, Brian Wrather, Chris Freeland, and Mark Zigrang, internship coordinator. Not pictured: Bill Carril.

The interns work at the Garden full time for 12 weeks, rotating through different areas and activities on the grounds. Working side-by-side with staff experts, the students gain experience in professional gardening that relates to their studies. Each intern is also responsible for a special project, such as designing display beds, studying water lilies, or preparing a collections maintenance manual.

Dr. Shannon Smith, director of horticulture, said, "The Garden's internship program is a win/win situation where the students help us with maintenance while they gain practical experience and unique educational opportunities in botanical garden operations."

The nine interns at the Garden last summer were:

Jason Reeves, University of Tennessee at Martin;

Christopher Freeland, Eastern Illinois University at Charleston;

William Carril, Belleville Area College;

Brian Wrather, Southeast Missouri State University;

Cindy Boos, Meramec Community College;

Lorinda Pittsenbarger, New Mexico State University at Las Cruces;

William Perez, B.S. from Cornell University, working toward a National Diploma in Horticulture at Durham, England;

Meridith McAvoy, University of Missouri at Columbia;

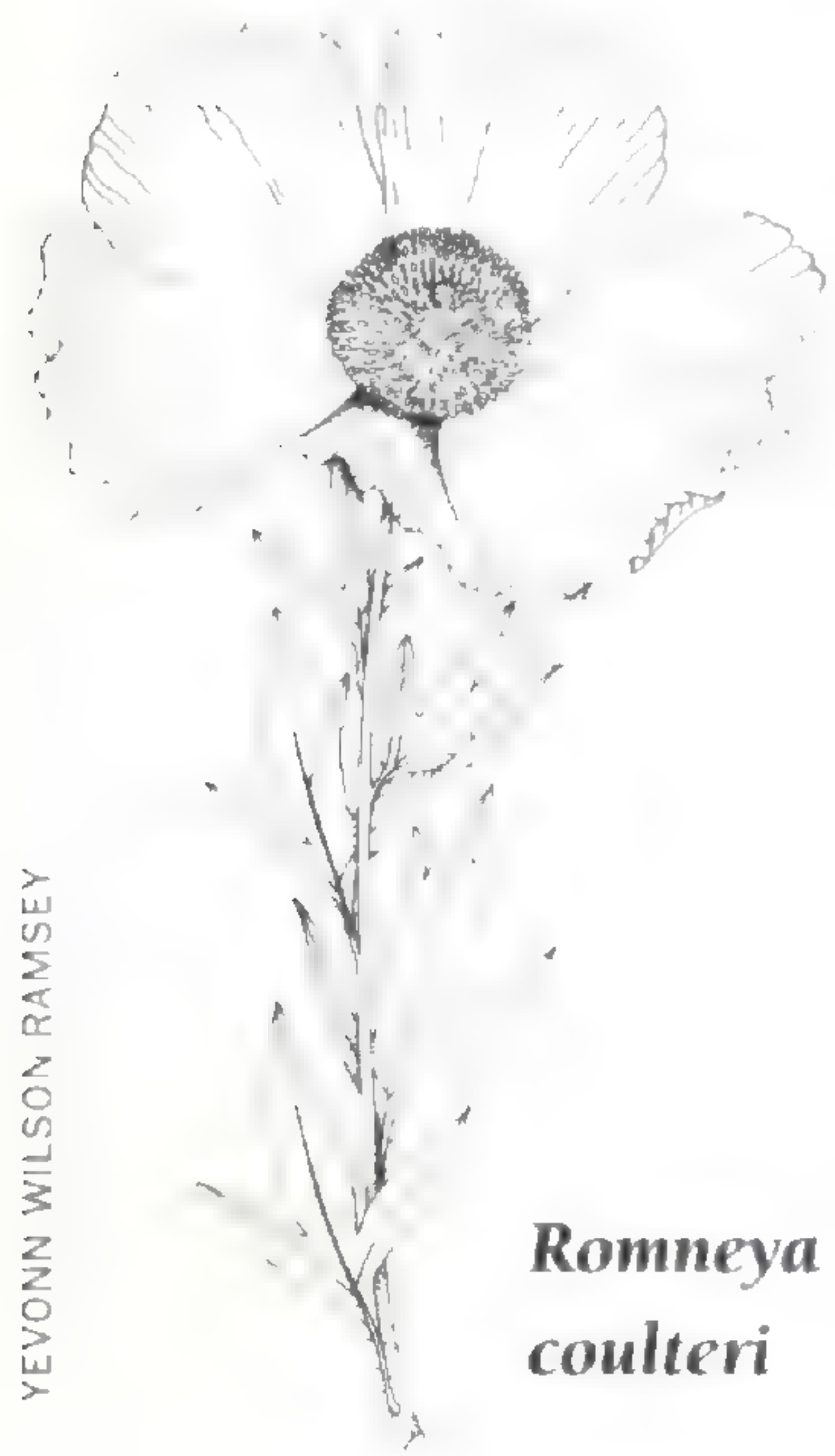
Marcelo Oliveira, a native of Brazil studying at Escuela de Agricultura de la Region Tropical Humeda (EARTH), in Costa Rica, an international school committed to development of sustainable agriculture for the tropics.

Update: Flora of North America

VOLUME THREE of the *Flora of North America* was published in June, marking another important milestone toward the project's goal of producing 30 volumes by 2006. Volumes One and Two were published in 1993.

The completed volumes and manuscripts for future volumes are also available on the World Wide Web at http://www.fna.org. All volumes are extensively illustrated.

The huge project is a collaboration among hundreds of researchers at some 30 institutions in the United States and Canada. Missouri Botanical Garden serves as the project's organizational center, under the supervision of Dr. James L. Zarucchi, managing editor. The Hunt Institute for Botanical Documentation at Carnegie Mellon University is the bibliographic center.


YEVONN WILSON RAMSEY

Romneya coulteri

The Flora of North America (FNA) presents for the first time, in one place, authoritative, up-to-date information on the names, relationships, characteristics, and distributions of all plants that grow outside cultivation in North America north of Mexico. This includes some 20,000 species of plants, about seven percent of the world's total.

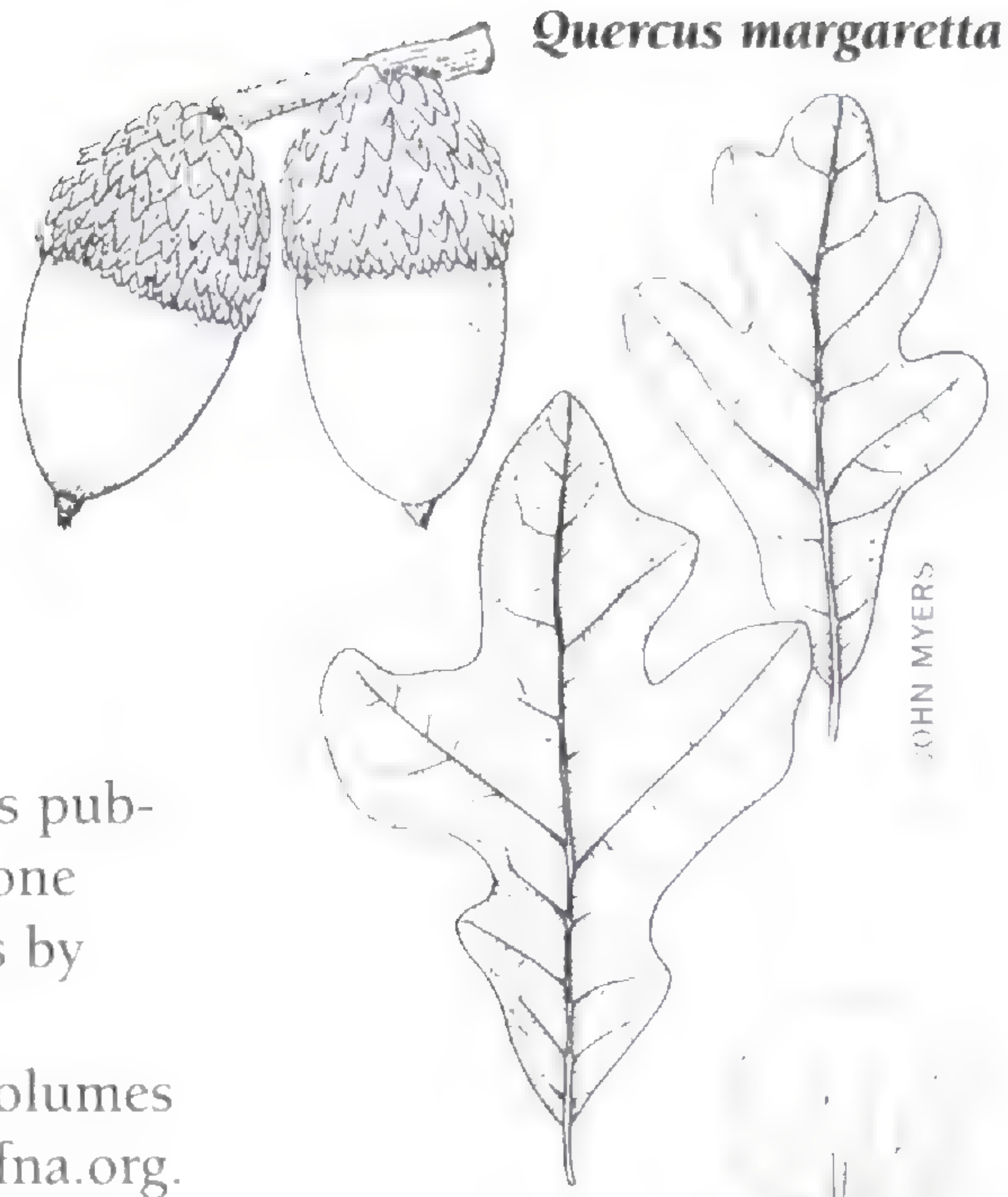
This information is crucial for making informed decisions about resource management, land use, and conservation. FNA also provides the fundamental information necessary for innovative scientific research.

Volume Three contains treatments for 32 plant families in 128 genera with 741 species, including oaks, elms, poppies, buttercups, delphiniums, magnolias, birches, walnuts, and other related dicots. Of the 649 native species described, 67 percent are endemic to the flora area. In the past 20 years, 13 of the species in Volume Three have been described as new to science.

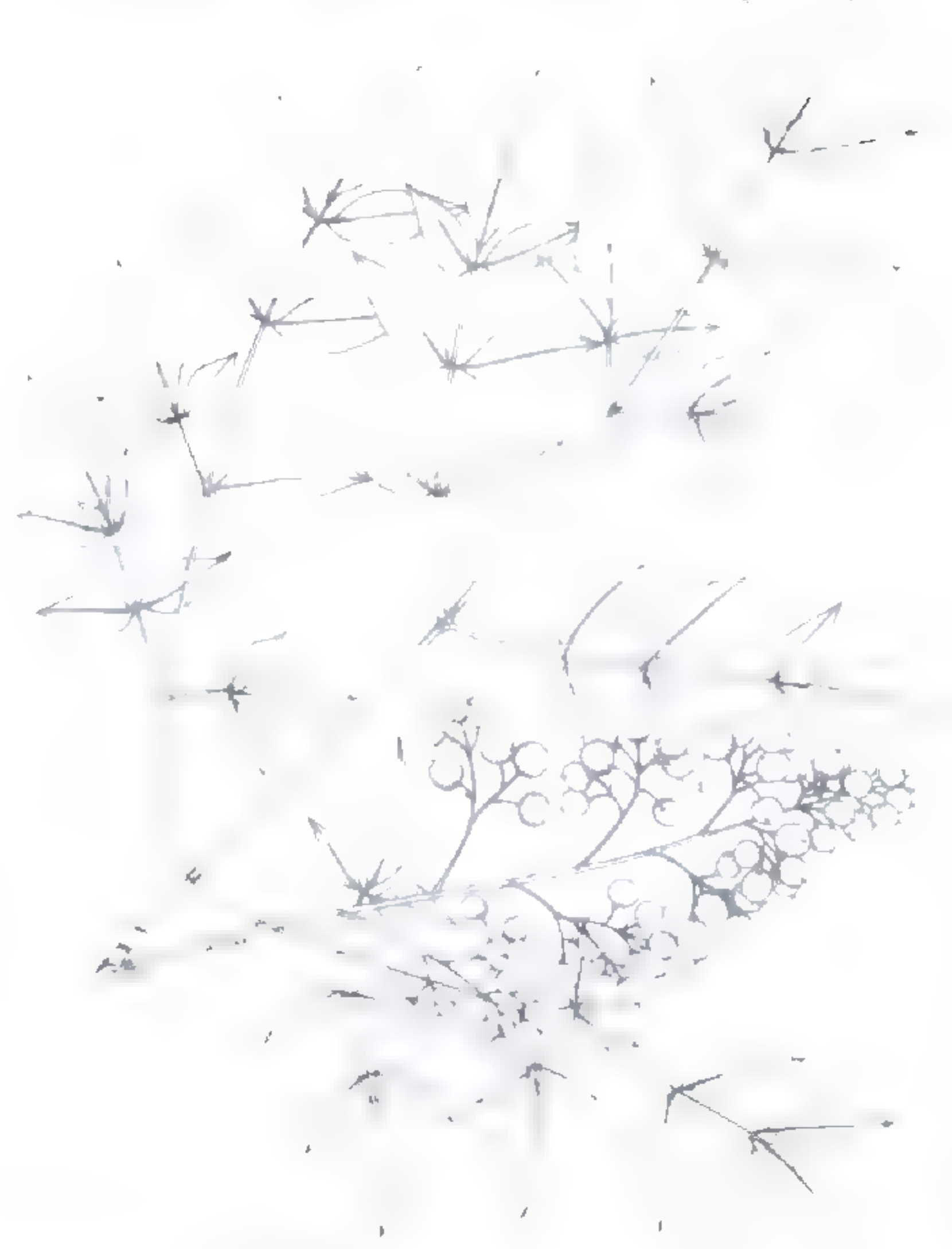
FNA is also breaking new ground by developing innovative computerized editorial methods. The new procedures use the Internet to facilitate editorial review of manuscripts and are expected to speed completion of the project signficantly.

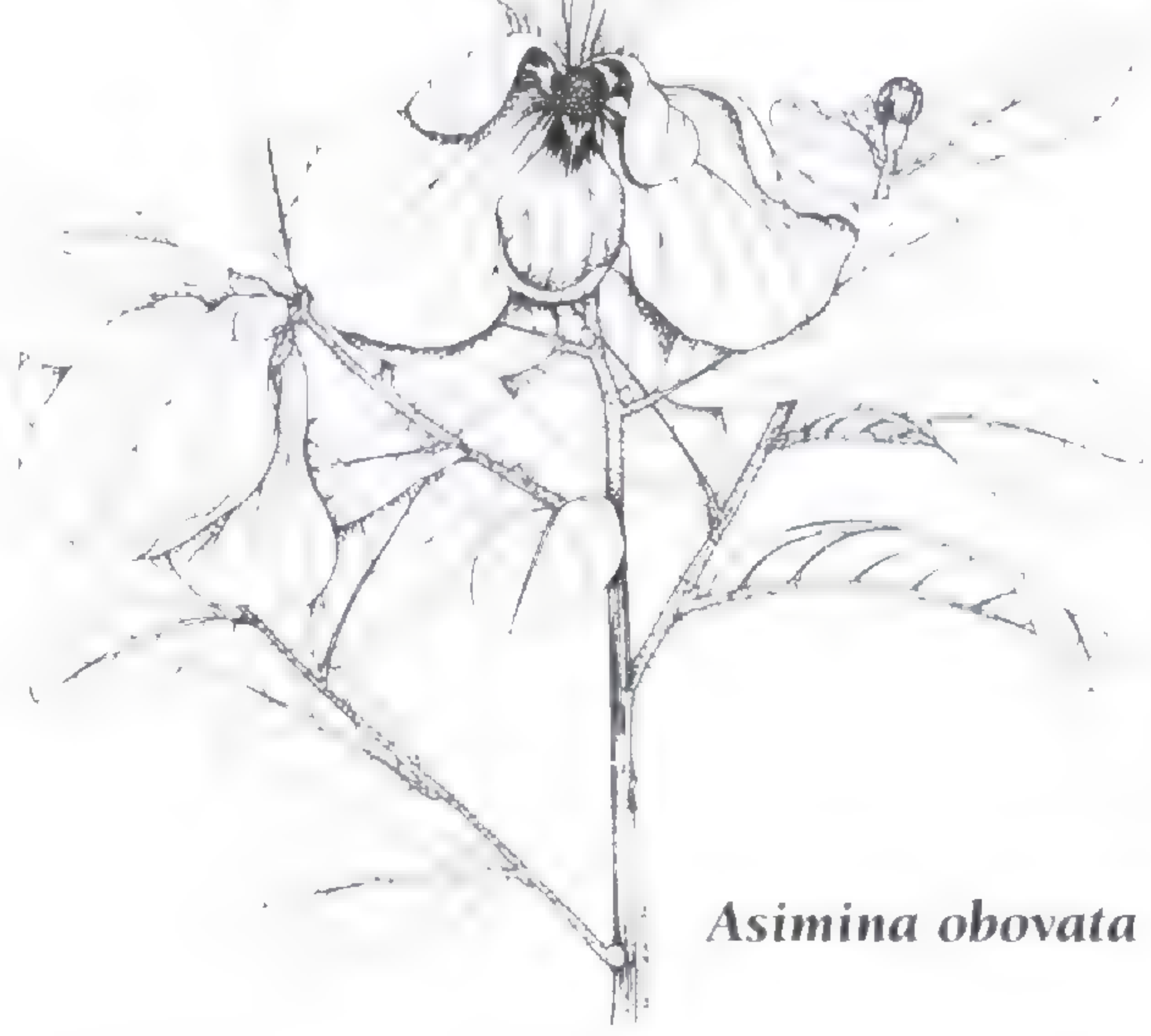
Funding for the Flora of North America has been provided by the National Science Foundation, The Pew Charitable Trusts, The Caleb C. and Julia W. Dula Foundation, The Surdna Foundation, The David and Lucile Packard Foundation, the National Fish and Wildlife Foundation, the ARCO Foundation, The William and Flora Hewlett Foundation, Union Pacific, Chevron, the Edward Chase Garvey Memorial Foundation, Waste Management, Inc., the Andrew W. Mellon Foundation, and The Geraldine R. Dodge Foundation, and by donors to the 25th anniversary celebration of Peter H. Raven as director of the Missouri Botanical Garden.

Quercus margaretta


JOHN MYERS

Nandina domestica


YEVONN WILSON RAMSEY


YEVONN WILSON RAMSEY

Asimina obovata

Garden Receives Grant from Institute of Museum and Library Services

THE GARDEN has received a 1997 General Operating Support grant of $112,500 from the Institute of Museum and Library Services (IMLS), a Federal agency serving the public by strengthening museums and libraries. Recipients represent a full range of museums, from art to zoos, and 94 percent use the two-year grants for educational activities.

To qualify for operating support from IMLS, museums must demonstrate outstanding performance in all areas of their operations. Peter Raven said, "The Institute's wonderful support sustains the Garden's heritage while connecting us solidly to the future, and we are very grateful for its assistance. It is wonderful, indeed, to be recognized for professionalism and quality by an agency of IMSL's prestige."

CPC Receives Grant from Mellon Foundation

THE CENTER FOR PLANT CONSERVATION (CPC) has received an award of $360,000 from The Andrew W. Mellon Foundation for general operating support over a period of approximately three years. "The Mellon Foundation has been instrumental in assuring CPC's vitality and stability since its inception, and this renewed commitment will enable CPC to take a major step toward establishing itself as the preeminent plant conservation program in America," said Dr. Brien A. Meilleur, president and executive director. CPC is a national consortium of 28 botanical gardens and arboreta with its headquarters at the Missouri Botanical Garden.

Quail Take Up Residence in the Garden

WHEN Henry Shaw lived at the Garden, wild bobwhite quail inhabited the area in abundance. Last September, in consultation with the Missouri Department of Conservation, the Horticulture Division released several dozen quail on the grounds in an attempt to establish new populations of wild birds at the Garden.

TIM PARKER

At left: Jim Cocos (R) and Ben Chu releasing quail in the Prairie Garden. A "call box" is at right. Above: One of the bobwhite quail.

Jim Cocos, horticulture operations manager, said, "Quail are a good indicator of the health of a local ecosystem. The biggest threat to the birds' survival is loss of habitat from intensive land use. We have good cover and food plants here for them, and we think they have a good chance to do well."

Bobwhite quail, *Colinus virginianus*, are native to the United States east of the Rockies. They are found throughout the Midwest and South. The birds weigh from five to seven ounces and live in groups of eight to 20, called coveys. They eat primarily fruits and seeds of annual plants and require ample cover from grassland, brush, and woodlands.

The quail were released in the English Woodland Garden and in the native plant area at the Kemper Center for Home Gardening. At each location, one quail was placed in a "call box," a cage with food and water, and a dozen other birds were released nearby. Food and water were supplied in each spot, and after five days the caged quail were released. The technique encourages the birds to remain at their new locations long enough to establish coveys. Although identical to wild quail, the birds used were reared by a breeder, which gives them greater tolerance to the presence of humans.

Cocos said that the Horticulture Division plans to release more quail next spring and evaluate the success of the experiment next summer. Meanwhile, be sure to watch for our newest residents as they scurry about the native plant areas!

Protecting Our Elm Trees

FOURTEEN of the largest elms at the Garden are receiving preventive treatments for Dutch Elm Disease (DED). This fall, trained arborists on the staff are injecting the trees with insecticide, to be followed by injections of fungicide in the spring. Each treatment lasts for about a year. Promising results have been reported in the horticulture trade.

Unfortunately there is still no certain prevention or cure for DED, which has devastated elm populations across the United States. The disease is caused by a fungus, *Ceratocystis ulmi*, which was introduced into the United States from Europe around 1930. The fungus is carried by beetles which breed only in dead, dying, or recently cut elm wood and winter as larvae under the bark. The disease is very difficult to detect in its early stages, and once five percent of a tree is infected, no treatment is effective.

All elms have some susceptibility to DED, and mature trees are the most vulnerable, especially the stately and beautiful American elm, *Ulmus americana*. Research over the past 20 years has developed some promising new hybrids, but so far no trees impervious to DED have been identified. The Garden is planting some of the new hybrids and will monitor their progress as they mature. To date, Asian elm species and hybrids seem to be the most resistant to DED.

TIM PARKER

MBG horticulturist Ben Chu injects an elm in the English Woodland Garden.

With large existing trees like those at the Garden, some of which are at least 100 years old, prevention is the only possible course. When planting new trees, it is helpful to avoid planting monocultures of elms, which makes it all too easy for the disease to spread. Prompt removal of diseased trees is also an important preventive measure.

Staff will continue to monitor the Garden's elm trees closely and will assess the effectiveness of the program next year.

TROPHIC CAFE

Susan Mintz demonstrates how cheeseburgers come from plants.

Eco-Carts Make Learning Fun

How can an ice cube run a fan? Is rot the same as rust? What do rubber, cocoa, and paper have in common? Now visitors of all ages can explore natural science and learn about ecology with the Garden's new Eco-Cart demonstrations, which premiered in October in the Brookings Interpretive Center. Whether the topic is energy, chemical reactions, or decomposition, visitors will take home new ideas about ways to protect the Earth.

Free demonstrations are scheduled on Saturdays at 11 a.m., 1:00, 1:45, and 2:30 p.m. School and youth groups can schedule presentations at a cost of $30 per session by calling the Education Division at (314) 577-5140 a month in advance.

Development of the Eco-Carts was made possible by the generosity of the McDonnell Douglas Foundation. Staffing is supported by the Edward Chase Garvey Foundation.

GARDEN GATE
SHOP

All proceeds from sales in the Garden Gate Shop support the Missouri Botanical Garden.

Members Day November 8

"Holiday Decorating"

In addition to their regular ten percent discount, members receive an additional five percent off Dean Griff's Charming Tail collectibles and the MBG Portmeirion Herb Pot.

Members Day December 6

YMCA Boys Choir

In addition to their regular ten percent discount, members receive an additional five percent off windchimes and boxed amaryllis and paperwhite kits.

20% Discount for Members at Two Sales

Pre-Holiday Sale

November 6, 7, & 8
Thursday & Friday: 9 a.m. to 6:30 p.m.
Saturday: 9 a.m. to 5 p.m.

Holiday Sale

December 11, 12, & 13
Thursday & Friday: 9 a.m. to 7 p.m.
Saturday: 9 a.m. to 5 p.m.

Garden members take 20 percent off all the wonderful holiday merchandise during the Shop's two annual holiday sales.

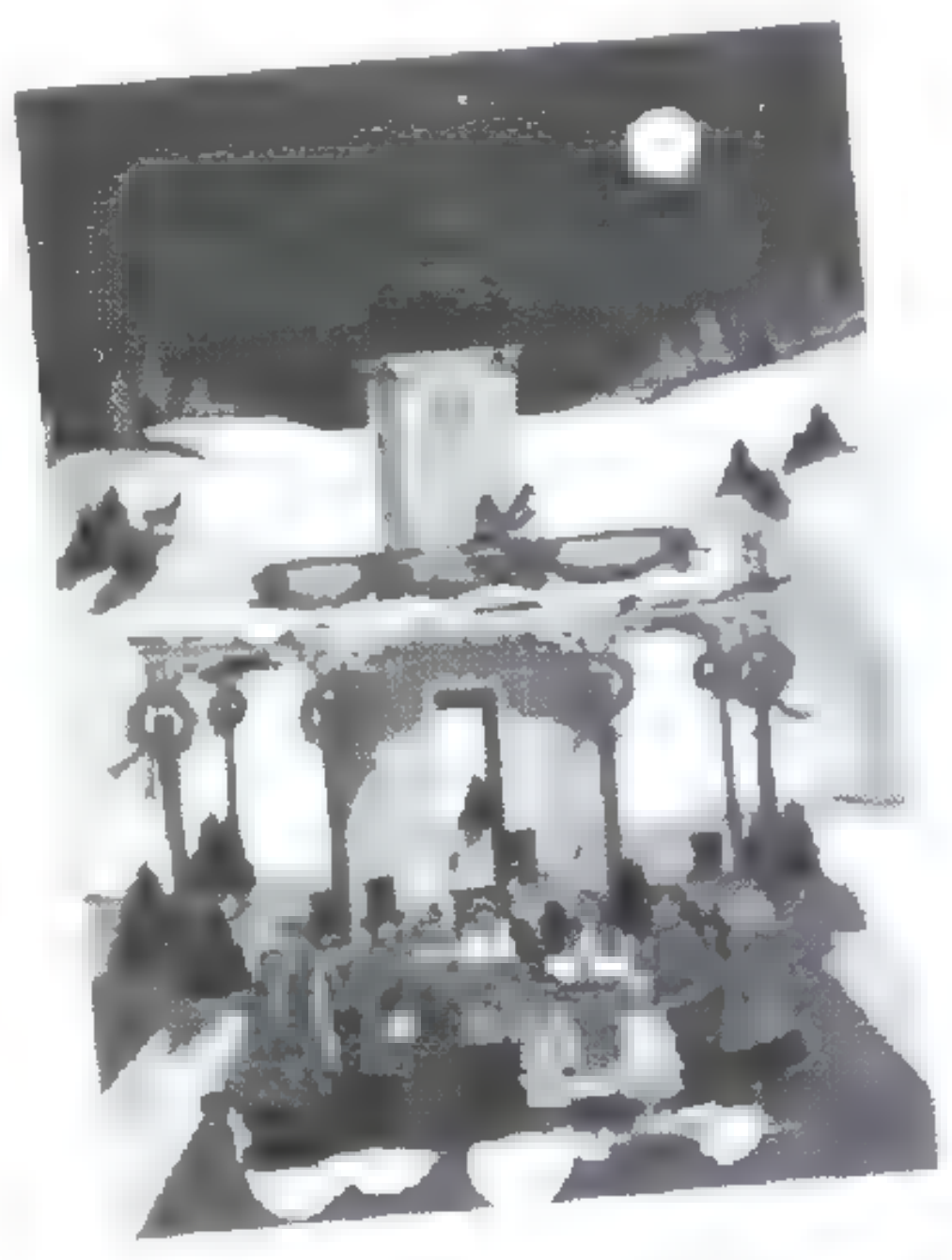
1998
Missouri Botanical Garden Calendar

1998 Garden Calendar

Everyone's favorite calendar features spectacular new photographs of Garden scenes by Jack Jennings, plus a colorful poster on the Solanaceae family. 16 x 12 inches, $11.95.

1997 Holiday Card

Another in the delightful series by St. Louis artist Ann Thompson features Henry Shaw and friends enjoying a snowy evening at the Piper Observatory. Package of 12 cards and envelopes, $13.



Holiday Gift-Giving Hints from the Garden

For the Environmentalist:
- Recycled aluminum pots, $12–15
- Biodegradable dinner ware made from leaves of *Botea fronosa*, $8.50–26

For the Serious Gardener:
- Burlap garden aprons, $26
- Rose gloves with cuffs, $21
- Weedivator multi-use tool, $17.50
- Rare yellow clivia, $25
- French lightweight watering can, 13 liters, $50
- Kit: *Art & Method of Grafting Trees*, $52

For the Interested — Books:
- *Meetings With Remarkable Trees*, $40
- *The Gardener's Gripe Book: Musings, Advice, and Comfort for Anyone Who Has Ever Suffered the Loss of a Petunia*, $10.95
- *Weathering Winter*, $19.95
- *Brother Cadfael's Herb Garden: Medieval Plants and their Use*, $29.95
- *AHS A-Z Encyclopedia of Garden Plants*, $79.95

For the Gourmet:
- Chocolate pasta, $5.50
- Seville orange cranberry horseradish sauce, $5.50
- Garden fresh cheese spread in terracotta pot with shovel-shaped spoon, $7.50
- Garden basil sunflower oil, $9
- Caviar de Courgettes provencal zucchini caviar, $9.50
- Delice de Provence honey with almonds, hazelnuts, walnuts, $13

For Kids:
- Make Your Own — Kits for chewing gum, gummies, and chocolate, $11.50
- Jungle Biosphere, $12
- Ladybug Lodge, $16.50
- Color Your Own T-Shirts with educational information on butterflies, frogs, bugs, and more, $18.50

Stocking Stuffers:
- Enviromints, $.40
- Apple Lollipop with a Worm, $1.50
- Grow Your Own Peanut, $2.25

Stocking Stuffers continued:
- Tree in a Box, $5.50
- Kaleidescopes with insects, birds, and butterflies, $8.50

Stocking Stuffers for Grownups:
- Cookie cutters with recipe for bird treats, $5
- Gardener's vegetable soaps in a tin, $5
- Silk flower pens, $6
- Handpainted floral mini-windchimes, $6
- Handblown glass posey pins, $6.50
- *Story of a Christmas Rose*, $7
- Floral socks, $7.95
- Botanical needlepoint eyeglass case, $15

For the Joy of Giving:
- Brightly colored pots with ready-to-grow amaryllis, paperwhites, and herbs, $15–43
- Miniature decorated Christmas trees, $4.50–26
- Poinsettias, $4–28
- Ikebana kits, $39

For the Luxury:
- Lucite trays and bowls with hand-dried flowers, $95
- BioSpheres, $100 and $160
- Desktop stone fountains, $90–100
- Table lamps with dragonfly, ladybug, or bee motifs, $200–265

For the Collector:
- Newest Dickens Series of Collectible Homes
- New releases from Dean Griff Series of Charming Tails

Gifts from the Garden
- MBG Videos: *Spring Flowering Bulbs* and *Roses*, $19.99
- *Garden Gate Cookbook*, $14.95
- MBG Salsa, Picante, and Barbeque Sauces, $4

January 3, 4, & 5, 1998

Pre-Inventory Sale

The Shop will feature select merchandise at very special prices. This sale will not be advertised again.

In Memoriam

Marian E. Cotter

Staff and friends of the Garden were saddened by the death of Marian E. Cotter on September 12. Miss Cotter was principal of the Mullanphy-Botanical Garden Investigative Learning Center, a St. Louis magnet school that opened on Shaw Boulevard near the Garden in 1993.

"Marian Cotter was an outstanding educator," said Dr. Larry DeBuhr, the Garden's director of education. "We worked closely with her in developing the curriculum at Mullanphy, which employs the scientific method of learning through hands-on experimentation. She was a leader in the St. Louis Public School system and wonderful dealing with students and parents. We will all miss her very much."

Marian Cotter began teaching in St. Louis Public Schools in 1958 after graduating from Stowe Teachers College. She served as principal at Waring School and Stix ILC, an early science magnet school, before moving with the program to Mullanphy. She had a master's degree in education administration from St. Louis University and had completed advanced graduate work at Washington and Vanderbilt universities.

"SKIMMING THE WAVES," a bronze pelican in flight, has been installed in the Heckman Bulb Garden. The sculpture and its surrounding plantings were given in loving memory of William Guy Heckman by his family. The 35-inch bronze is part of a limited edition by Geoffrey C. Smith, one of the country's leading sculptors of birds. The work represents the brown pelican, a master fishermen with a ten-foot wingspan. Brown pelicans can dive into the water at 60 miles per hour, emerging with their lower bills filled with fish. These gentle birds have come to symbolize of peace and good luck.

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JULY – AUGUST 1997

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Mrs. Bobbie Schaller
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The following tribute was listed incorrectly in the last issue. We regret the error

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Michael John Purcell
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Bricks donated to the Members' Entry Court at the William T. Kemper Center for Home Gardening between August 1, 1997, and September 30, 1997:

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Dr. Lonnie Haefner
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Friends and Family of Rhoda Hochman
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Friends of the Charles B. Pring Revocable Living Trust
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Visit with Santa at Spink Pavilion

CAROLS IN THE GARDEN

Wednesday & Thursday • December 3 & 4 • 5 to 9 p.m.

Carolers and Instrumental Music at Several Locations
Santa Visits at Spink Pavilion
Chestnuts Roasting Near the Linnean House
Children's Holiday Crafts in Monsanto Hall
Holiday Flower Show "Toyland in Bloom" • Holiday Wreaths Exhibit
Garden Gate Shop Is Open

Admission: $4 Garden members and seniors age 65 and over; $6 non-members; $2.50 children age 12 and under.

Buffet Supper served by Santa's Elves in the Gardenview Restaurant, 5 to 7 p.m.: $7.95 adults, $4.25 children age 12 and under. No reservations required.

Tower Grove House Candlelight Tours

December 3 & 4, 4:30 to 8:30 p.m. Enjoy tours and refreshments in Henry Shaw's country home, decorated for the holidays in Victorian splendor.

Candlelight Tour Package: $13 per person

Includes: Carols in the Garden, Tower Grove House tour, and Tea Room refreshments. Reserve tickets beginning November 11 at the Ridgway Center ticket counter, or call 577-5125 for reservations.

For more information call GardenLine, 577-9400, or 1-800-642-8842.

A HOLIDAY TRADITION

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JANUARY/
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1998

VOLUME LXXXVI
NUMBER ONE

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

FIFTY YEARS AGO, the Garden received seeds of a "living fossil," a species long thought to be extinct, which had been discovered growing in China. The seeds produced the magnificent dawn redwood trees, *Metasequoia glyptostroboides*, that stand today beside the Lehmann Building. It seems fitting, as we move into our splendid new research facility, The Monsanto Center, that we celebrate the golden anniversary of these remarkable trees. The dawn redwoods are an eloquent symbol of the Garden's mission, of its international research, and of our dedication to preserving biodiversity and promoting global sustainability. Learn all about the dawn redwoods on page 7.

Sustainability was the theme of an address presented by Mickey Kantor, former United States Trade Representative and former U.S. Secretary of Commerce, at a dinner at The Monsanto Center in November. We were delighted to welcome Mr. Kantor and to share his remarks on the importance of international cooperation, which you will find on page 4. Bringing environmental concerns closer to home, see an account of the sustainable features of the low maintenance landscaping at The Monsanto Center on page 5, and learn more about the environmentally friendly housekeeping products in use at the Center and elsewhere at the Garden.

Where have all the flowers gone? It may be cold and grey outdoors, but there is still a world of color at the Garden. Visit the glorious annual Orchid Show, the camellias blooming in the Linnean House, and take a tour of the Climatron — a guide to some of the exotic and spectacular plants you will find there is on pages 8 and 9. And stop by the Kemper Center for Home Gardening, where spring is just around the corner!

— Peter H. Raven, Director

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400
24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522
You will need a touch-tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401
Information on jobs and volunteer opportunities at the Garden is available with a touch-tone phone. Listings are updated bi-weekly.

Horticultural Answer Service: 577-5143
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Master Composter Hotline: (314)577-9555
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Visit the Garden on the World Wide Web:
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Garden Hours

9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Kemper Center for Home Gardening: 9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: open until 8 p.m., Tuesday through Saturday. Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop: 9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: 9 a.m. to 6:30 p.m. daily, Friday and Saturday open until 7 p.m. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant: Buffet service during hours the grounds are open.

Tower Grove House: 9:45 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January. Admission is free for Garden members.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 40 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. Admission is free for Garden members. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House open 10 a.m. to 4 p.m. daily, closed on Mondays. For information call (314) 451-3512.

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On the Cover

Like the rest of the Japanese Garden, *Seigan no taki*, the blue boulder cascade, is especially beautiful in winter.
– Photo by Jack Jennings

Editor
Susan Wooleyhan Caine

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The Library & the Herbarium

Moving DAYS

CLIFF WILLIS

MOVING is tough for everyone. But just imagine moving millions of plant specimens and more than 120,000 books! During November and December the Research Division staff, assisted by professional movers, transferred the Garden's world-renowned library and portions of the herbarium collection to The Monsanto Center.

About half of the 4.8 million herbarium specimens remain in the Lehmann Building, where they have been redistributed among the compactors. Overcrowding in recent years forced many specimens to be placed in storage. The move will give researchers access to the entire collection, plus room to expand.

"Moving was like organizing a giant jigsaw puzzle," said Dr. James Solomon, curator of the herbarium. The plant specimens were boxed and trucked to the new building, where they are filed in storage compactors on the second and third floors.

It was like organizing a giant jigsaw puzzle.

The Garden's herbarium is one of the three largest in the United States and the fastest growing in the world, with 100,000 new specimens added annually. Dried plants arrive at the Garden constantly from botanists working around the globe. The specimens are mounted, labeled, and filed on 11 x 17-inch sheets of acid-free paper.

The herbarium includes specimens of extinct and endangered species. The oldest items are dated prior to 1750. The Garden acquired its first herbarium specimens in 1857.

The Garden library currently has over 121,000 volumes. The books were placed on carts, covered with plastic, and rolled onto trucks for transport to their new home on the fourth floor of The Monsanto Center.

Handled with special care were the 8,000 volumes in the Garden's Rare Book Collection. The oldest volume is *Liber Ruralium Commodorium*, published in 1474. Many of the old books are fragile, and the Shoenberg Book Conservation Center, where volunteers repair and restore items in the collection, will also be moved to The Monsanto Center.

More than 1,000 of the rare books were produced between 1450, when the printing press came into use, and 1753, when the Swedish botanist Carolus Linneaus published *Species Plantarum* establishing the modern system of plant classification. The Garden's "Pre-Linnean" collection, one of the world's finest, is an important record of botany and of the history of books.

Top: Movers handled the rare books with special care. All volumes were placed on carts for the move.

Center: Botanists John MacDougal (left), Gerrit Davidse, and Charlotte Taylor filing herbarium specimens in the new compactors.

Right: Well over two million specimens were moved to The Monsanto Center.

On November 20, 1997, a dinner was held at The Monsanto Center for members of Civic Progress, Inc., to honor the goals shared by Monsanto Company and the Missouri Botanical Garden — excellence in plant science and global sustainability. The speaker for the evening was Mickey Kantor, former United States Trade Representative and former U.S. Secretary of Commerce. The following is excerpted from Mr. Kantor's remarks:

WE ARE IN THE AGE of interdependence. We literally are joined at the hip by country and people; by economy, by environment, by how we are going to approach a future that can be bright on one side, but can be threatening when you look at it from another point of view.

In an age of interdependence, in information-age developed countries, technology and the end of the Cold War have led to globalization of our companies. [This] has created huge new opportunities, but it has also created a great deal of responsibility, and we are going to have to meet it....

On one side are those who believe we can throw up barriers, hide behind walls of fear, cower behind a past and a future that really never was. Those are the people who say that we don't need trade and we don't need to build the jobs of the future, and we don't need to worry about how we relate, in many different ways, including the environment, to the rest of the world.

Then you have on the other side those who say, "Just let her rip; open up the market, sell your goods, don't put any restrictions on, and don't understand that there are cross-border issues that we are going to have to face in the future that are critical not only to us but to our children and our grandchildren." Both sides in this debate are wrong and too simplistic. It is these cross-border issues that interconnect with what we are talking about tonight — sustainability.

The Monsanto Center is a magnificent facility — five million plant specimens, at least half housed in this building, and a library of 121,000 volumes, 8,000 of which are rare books. You have scholars coming in and out of here, going all around the world; and that is how we are connecting. We need to make sure, as we build trade, as we build a global economy, as trade becomes ever more important to our foreign policy and our economy, that we require, in our trade agreements and trade treaties, [that] we address the issue of sustainability. It is a responsibility that we all have.

The Monsanto Center anchors this neighborhood to a great city, which is really the biotechnology gateway of the world. It brings together the past of this neighborhood, and makes it and the future stronger with respect to how we are going to deal with all of these environmental problems in terms of biotechnology. I think the future will be stronger, not just because of Monsanto or the Missouri Botanical Garden, but because of what I see in the future for this city and what you are doing.

But that is going to require us and government policy, the way we approach the future, the way we deal with other nations, to make the environment and sustainability a serious part of every negotiation.... That has to be part of what we do in the future as we connect as human beings to build a better life for ourselves, our children, and grandchildren.

I am not only delighted to be here tonight, I am honored. Thank you all for what you have done, not only for this magnificent Monsanto Center or for the Missouri Botanical Garden, for which everyone ought to do more, but also for what you do for your community, your state, and your nation.

Below: In recognition of Monsanto's relationship with the Garden and its gift to name the new research Center, Robert Shapiro, a trustee of the Garden, was presented with a reproduction of the life-size bronze of Henry Shaw by Paul Granlund, which stands in front of Tower Grove House.

PHOTOS BY CLIFF WILLIS

Shown at the dinner (from left): Robert B. Shapiro, chairman and chief executive officer of Monsanto Company; Mickey Kantor, former U.S. Trade Representative and former U.S. Secretary of Commerce; William H. T. Bush, president of the Board of Trustees; and Dr. Peter H. Raven, director of the Garden.

Left: Balled and burlapped trees were planted when grading was complete. Some topsoil was trucked in, but most of the dirt was amended on site.

Below: Porous paving, which will fill in with grass, was installed in secondary parking areas. It will reduce heat gain from pavement and allow moisture to penetrate to roots of trees and shrubs planted around the parking lot.

Building for the **Environment**

ATTRACTIVE PLANTS PROVIDE THE FINISHING TOUCH to any new building. Next spring, when the trees, shrubs, and grass around The Monsanto Center begin to leaf out, the site will become a showcase of handsome, ornamental urban landscaping that conserves resources and makes the smallest possible impact on the environment.

Low maintenance is the key to environmentally friendly landscaping.

Low maintenance is the key to environmentally friendly horticulture. The plan for the Monsanto Center grounds, developed by Environmental Planning & Design of Pittsburgh, Pennsylvania, emphasizes hardy perennials with low water and fertilizer requirements. The plants do not require frequent pruning and are resistant to diseases and pests.

One of the most striking features of the plan may well be the grassy areas used in place of conventional lawns around the building. Turf areas near the entrance are planted with prairie dropseed, *Sporobolus heterolepis*, an attractive ornamental grass. Elsewhere on the site, broad areas of turf are planted with a mixture of tough, hardy fescues that will stand six to eight inches tall and will be mowed only four or five times a year, minimizing fuel use. The entire site will have only one small strip of conventional lawn near the street.

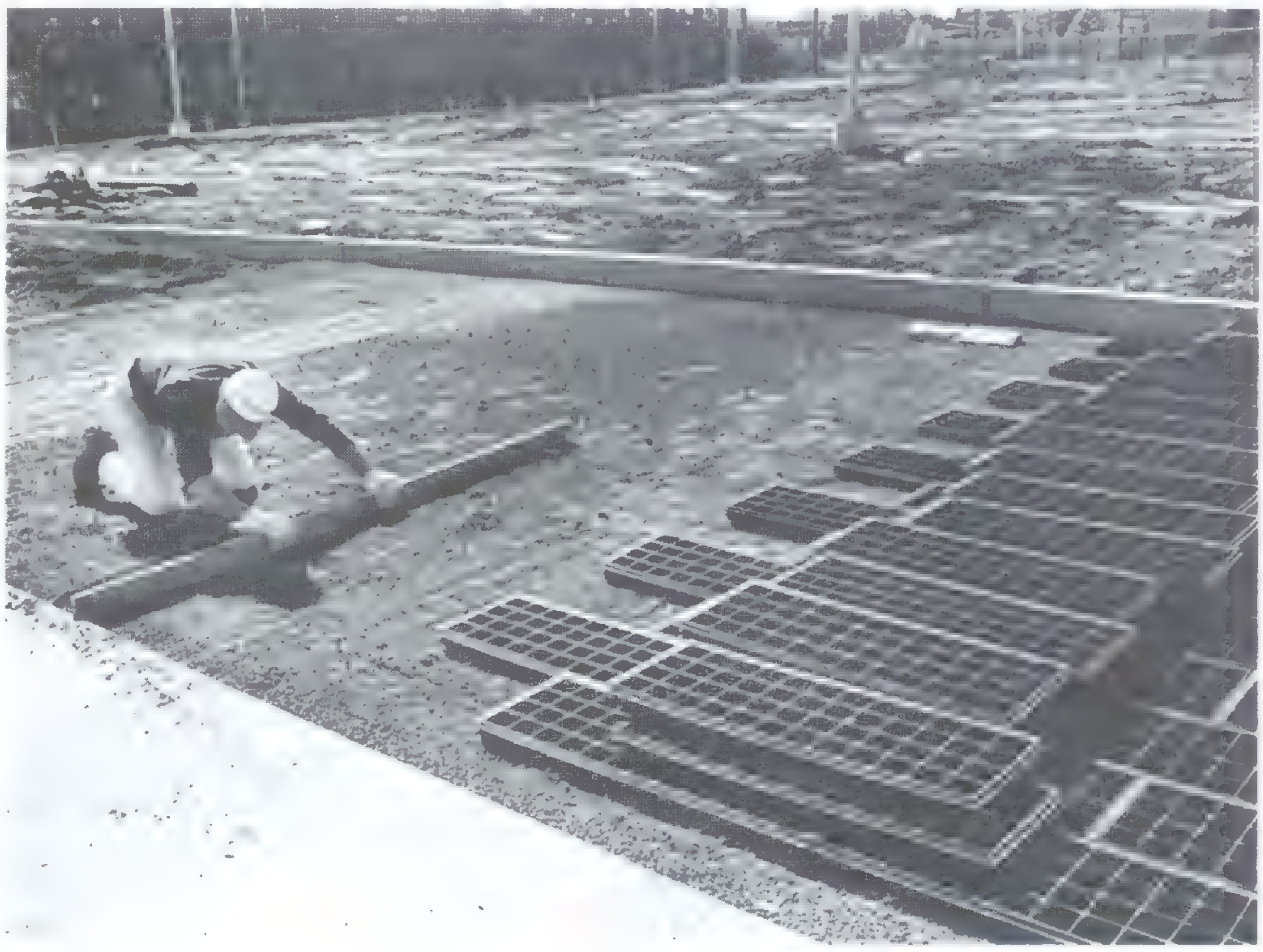
Water conservation is of primary importance. Given the brutally hot St. Louis summers, even the hardiest ornamental plantings cannot become established without some irrigation. Rather than using hoses, which require labor to set up and operate, underground irrigation lines were installed. Irrigation can be applied selectively in 35 different zones, depending on water requirements of each area. The irrigation system will cost less to operate than manual irrigation and uses less water over time.

Energy conservation is also a factor in the parking areas. Paving stones were salvaged when the site was cleared and were reused near the entrance. The main parking areas were paved with concrete rather than asphalt to minimize emissions during manufacture.

Another innovative feature is the extensive use of "porous paving" for secondary overflow parking areas. An open grid of sturdy recycled plastic is embedded at grade level and filled with soil, then planted with tough grasses. The porous paving minimizes heat buildup and allows water to penetrate to the roots of plantings around the parking areas.

Trees are an important element of the plan, providing shade and visual interest throughout the site. Winterberries,

continued on page 6



PHOTOS BY CLIFF WILLIS

CLIFF WILLIS

The turf area on the east side of the building (at left in photo) was seeded with prairie dropseed, an attractive and drought resistant grass native to Missouri.

Low Maintenance Landscaping

continued from page 5

Ilex verticillata 'Sparkleberry' and 'Winter Red,' white pines, *Pinus strobus*, and crabapples, *Malus* 'Sugar Tyme,' are planted along the western border of the site to provide a windbreak and to screen the brick building to the south. A grove of northern red oaks, *Quercus rubra*, is planted at the southwest corner.

More red oaks stand at the entrance gate on Shaw Boulevard. The northern fence has a handsome row of matched Turkish filberts, *Corylus colurna*, an unusual landscape tree in this region that was chosen for its hardiness and attractive shape. A row of "scholar's trees," *Sophora japonica* 'Regent', are planted along Vandeventer Avenue and elsewhere on the site.

Smaller ornamental shrubs include dogwoods, *Cornus sericea* 'Isanti,' and smoketrees, *Cotinus obovatus*. A goldenrain tree, *Koelreutaria paniculata*, is planted in the circle bed at the entrance.

Ornamental beds feature massed plantings of shrubs that require little or no shearing. These includ sweetspire, *Itea virginica* 'Henry's Garnet,' *Spirea × bumalda* 'Goldflame,' *Clethra alnifolia* 'Rosea,' and pink indigo, *Indigofera kirilowii*. Hardy lilyturf, *Liriope muscari* 'Big Blue' and fragrant sumac, *Rhus aromatica* 'Gro-low,' are used extensively as ground covers. A few annuals will be added near the intersection for seasonal color.

Planting on the recovered industrial site presented a challenge to the horticulture staff. After the previous building was demolished and most of its materials were recycled, the remaining soil was poor and filled with rubble. Some topsoil was brought in, but much of the existing soil was excavated and amended on site.

As the landscaping at The Monsanto Center matures this spring and summer, it will provide an attractive oasis in the heart of its urban neighborhood and a model for low impact gardening.

Environmental Housekeeping

Clean & Green

Have you ever wondered what those harsh household cleaners might be doing to our water and soil after they go down the drain? For the past six months the Garden's housekeeping staff have been testing products that are as gentle to people as they are to the environment.

Kevin Mattingly, superintendant of general services, said, "We began looking for effective, environmentally responsible cleaning products as part of the overall planning for the new research center. The good news is that more and more of these kinds of products are becoming available in response to demand. The items we're using now are non-toxic, phosphate-free, and completely biodegradable, and they are actually cheaper to use than products made with petroleum solvents and harsh acids or alkalais."

The solutions are made of natural substances, including soaps and grease cutting solvents derived from citrus fruit. They are rated non-hazardous and biodegradable by EPA and OSHA standards.

The products include all-purpose and heavy-duty cleaners and disinfectant for all types of surfaces, plus floor finish removers and sealers. All are non-corrosive and most have a neutral pH. Cleaning crews can use them without protective equipment such as gloves or masks.

> The good news is that the products are non-toxic, phosphate-free, completely biodegradable, and cheaper to use.

John Farrington, supervisor of the Garden's housekeeping staff, said, "We make a point of choosing products from companies that are committed to sound environmental practices, even in packaging. The cleaning concentrates come in jugs made of #2 recyclable plastic, which are acceptable to most recycling centers. The cartons are made of recyclable cardboard."

"Use and re-use" is the watchword of the housekeeping staff at the Garden. All of the scrubbing and buffing pads they use in their power equipment are repeatedly cleaned and reused. When they are too worn, the pads are shredded and remanufactured into new heavy duty pads. "Reusing the pads is cost effective, it keeps a lot of material out of landfills, and it uses less energy in the long run," said Farrington.

Like the staff who work behind the scenes keeping the Garden spotless, environmental responsibility is not always easy to see. But it makes a big difference.

KING SCHOENFELD

"Living Fossils"

Celebrating the 50th Anniversary of the Dawn Redwoods

ONE of the most fascinating stories concerning botany in the 20th century revolves around the discovery of dawn redwood trees in China. This species, from a group thought to be extinct for millions of years, aroused considerable interest and excitement among both scientist and non-scientist alike when it came to light in the 1940s. Now, trees of this species are found in cultivation in many places outside of China, adding a stately elegance to many landscapes. The trees at the Missouri Botanical Garden form a graceful allée near Henry Shaw's country home, Tower Grove House.

An account of their introduction into cultivation begins with two unrelated events that occurred in 1941. In that year, a scientist in Japan, Dr. Shigeru Miki, described a group of fossil plants under the genus name *Metasequoia*. In that same year, a Chinese forester, Professor T. Kan, was exploring in a relatively remote area of east-central China and came across a tree he could not identify. By 1946, investigations by Chinese botanists revealed that this newly discovered tree belonged to the genus of fossil plants, and in 1948 it was formally given the name *Metasequoia glyptostroboides*. The English name "dawn redwood" was coined for this plant in 1948 by an American scientist, Dr. Ralph Chaney, of the University of California.

Even before it was given a scientific name, the discovery of this tree caught the attention of noted scientists of the day. One of these was a botanist, Dr. E. D. Merrill, at the time the director of the Arnold Arboretum of Harvard University in Cambridge, Massachusetts. He had long been interested in the flora of China and had made the acquaintance of many Chinese botanists. After studying preserved herbarium specimens from the plants in China, he made arrangements with his Chinese colleagues for the collection of seeds of this interesting tree. On this expedition in the fall of 1947, about one kilogram of seed was collected and sent to Professor Cheng Wan-chun at the National Central University in Nanjing. Professor Cheng in turn sent seeds to Dr. Merrill and to several other institutions in the United States and Europe. From the large shipment sent to him, Dr. Merrill further distributed seeds to a large number of institutions and individuals in 1948. Thus, this species, touted as a "living fossil," was introduced into cultivation only a few short years after its discovery in a remote area of China.

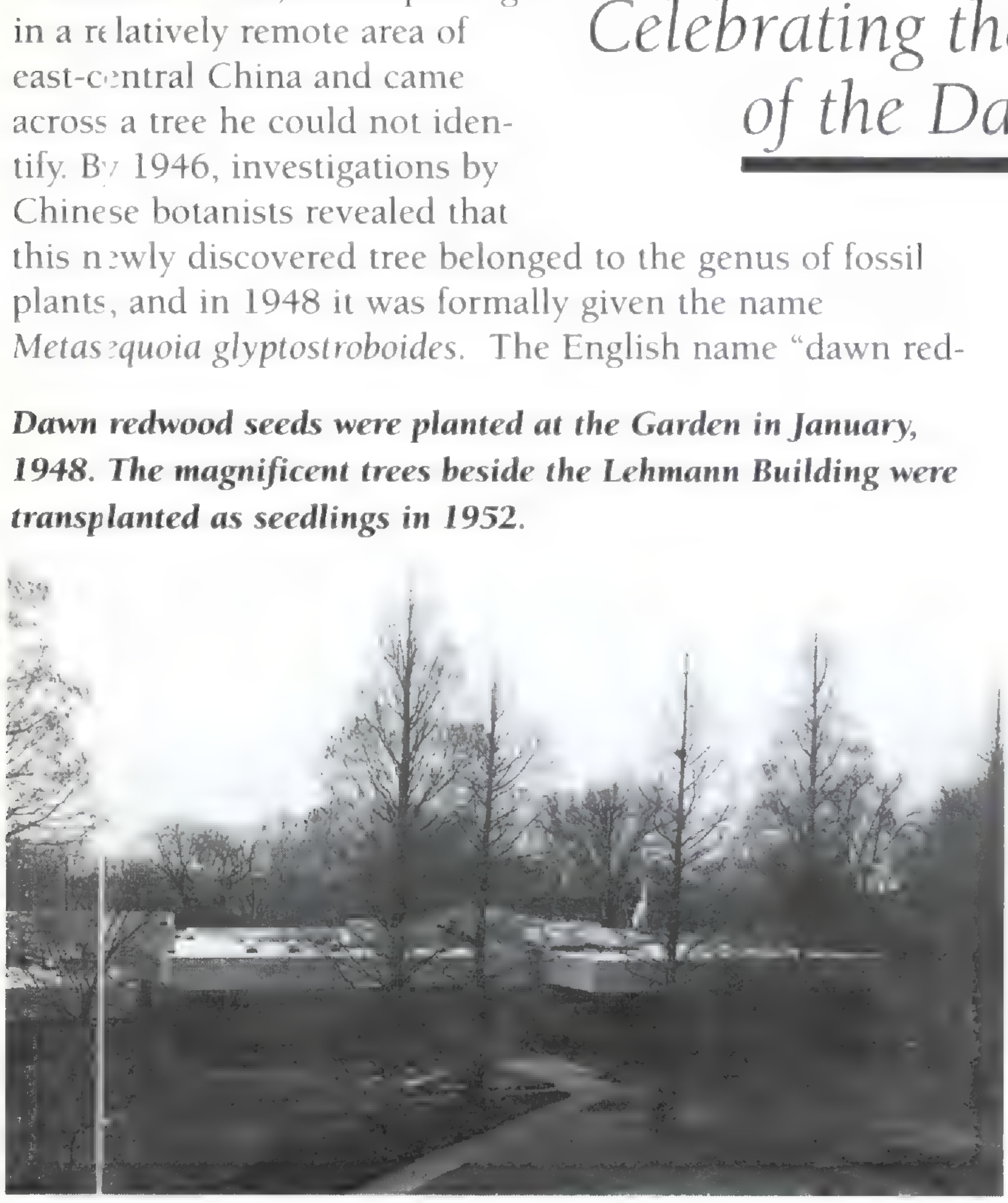
The plants at the Missouri Botanical Garden originated from a packet of seeds sent by Professor Cheng. These seeds arrived here on December 26, 1947, and were sown the next month. Excellent germination was achieved, and the Garden had a small crop of seedlings by the spring of 1948. The plants grew rapidly and in 1952 were moved from the nursery to their present location.

Today, *Metasequoia glyptostroboides* can be found growing at a number of botanical gardens, arboreta, and other places, both inside and outside of its native country. This is fortunate because the long-term survival of the species in its native habitat is not assured. Even though trees may live for hundreds of years, scientists monitoring the trees in China have not observed them to be successfully reproducing. It appears that the drastic changes that have occurred in its habitat over the last fifty years make it difficult for seedlings to become established.

— *Dr. Alan W. Lievens*

Dawn redwood seeds were planted at the Garden in January, 1948. The magnificent trees beside the Lehmann Building were transplanted as seedlings in 1952.

CLIFF WILLIS



Musella lasiocarpa ***is pictured in the Chinese garden, where it was on display last summer. This winter it can be seen in the Climatron.***

Musella lasiocarpa —
A Rare Gift

During a visit to China in 1996, Dr. Peter H. Raven was given three small plants of *Musella lasiocarpa*, which he carefully hand carried back to the Garden. Very rare in Western gardens, the plants were a gift from Prof. Wu Zheng-yi, emeritus head of the Botanical Institute of the Chinese Academy of Sciences in Kunming and co-chair of the editorial committee for the Flora of China project.

A single plant was kept here and was displayed in the Chinese garden last summer. This winter the mother plant is on display in the Climatron where visitors can enjoy it throughout the year.

The "pups," or offsets, from the plant will be distributed to other scientific institutions. Two of the three original *Musella* plants were given to Bruce Bartholomew of the California Academy of Sciences, a member of the editorial committee of the Flora of China, to grow outdoors in the San Francisco area.

Musella lasiocarpa is an attractive member of the Musaceae, or banana, family from the Kunming area of Yunnan Province in central China. Kunming, historically known as Yunnan-fu, was the first place in China visited by Marco Polo.

First described by Western botanists in 1889, *Musella lasiocarpa* was erroneously placed in the genera *Musa* or *Ensete* until it was analyzed in the 1970s. While *M. lasiocarpa* is similar in appearance and growth habit to bananas and plantains, features of its inflorescence and chemical analysis clearly identify it as a separate genus according to Dr. John Kress, an expert in the Musaceae.

— Boyce E. Tankersley III,
curator of living collections

Red Powderpuff

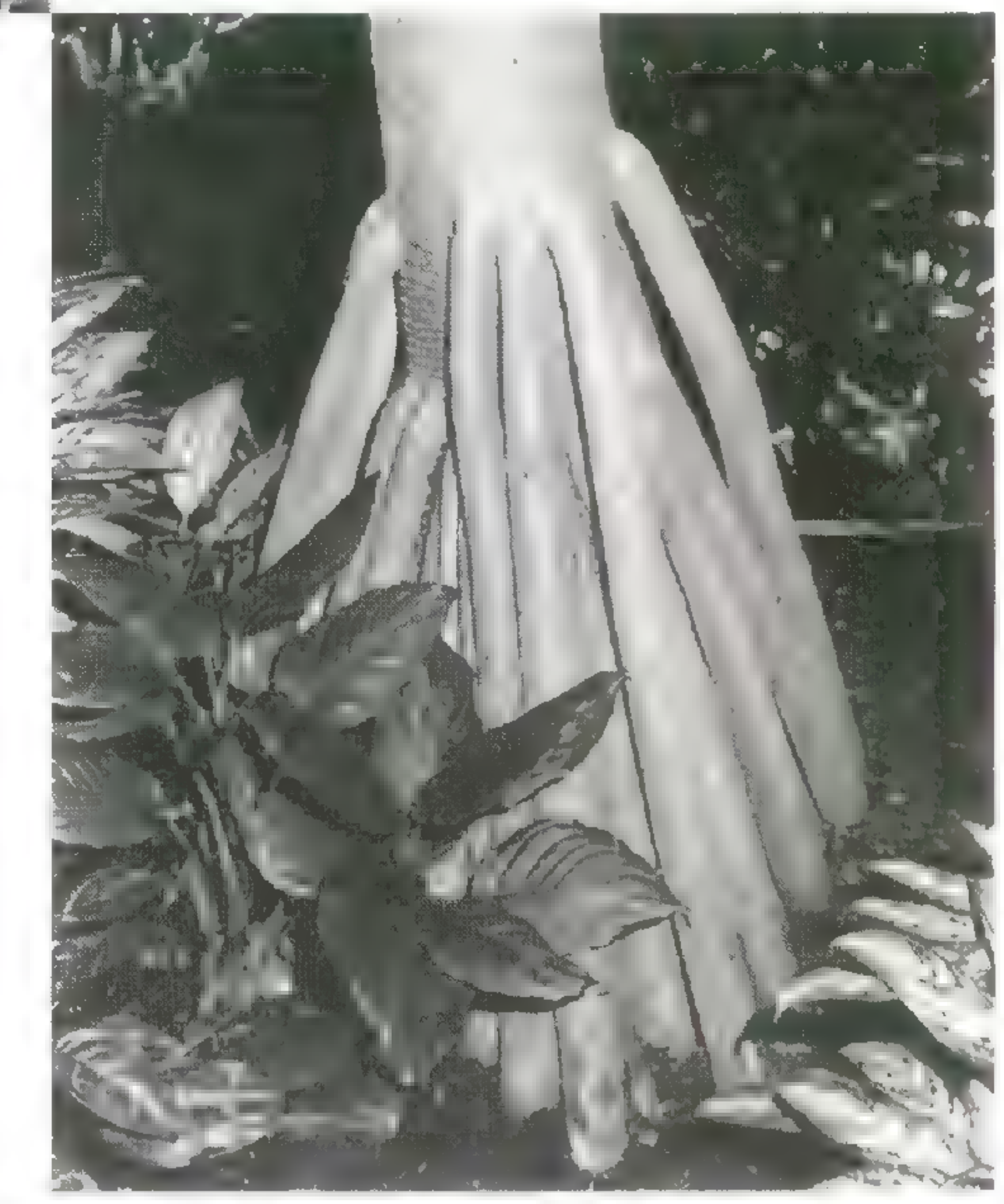
Right: The brilliant red powderpuff, *Calliandra haematocephala*, brightens many a winter day and blooms in several locations in the Climatron. This is just one of many tropical plants that bloom mostly in the winter.

Rare and Endangered

Left: The crescentia plant, *Crescentia portoricensis*, is an endangered species of the Bignonia family from Puerto Rico. Only 42 plants remain living in the wild. The pale green flowers, which smell like onions or pizza, are pollinated by bats in nature.

Propped Up

Right: The Climatron's large pandanus tree has stilt or "prop" roots at its base, an adaptation that supports the tree in the soft, swampy soil of its native habitat, the Philippines. The Garden received this *Pandanus copelandii* in 1961.



PHOTOS BY CLIFF

Midwinter Magic

The weather outside may be frightful, but you can delight in the colorful camellias blooming in the Linnean House and enjoy a Mediterranean climate in the Shoenberg Temperate House. And here's a preview of some of the most fascinating plants in the world, which you'll find growing right here in the Climatron.

By John MacDougal, Ph.D., MBG conservatory manager

Plants of the Dinosaurs

Above: Remnants from the age of dinosaurs millions of years ago, cycads are primitive plants that bear cones, not flowers. A number of the cycads in the Climatron were obtained from the 1904 World's Fair. The one shown here, *Dioon spinulosum*, is from Mexico. It has been growing in the same spot since it was planted in 1930 in the old Palm House. The Climatron was built on the same site in 1960 and renovated in 1989 without disturbing this magnificent specimen.

The World's Largest Seed

Opposite page: This young palm near the entrance of the Climatron is *Lodoicea maldivica*, the coco-de-mer palm, or double coconut. It grows up to 100 feet tall in its native habitat, the Seychelle Islands, and produces the world's largest seeds. An endangered species and almost unknown in cultivation, this plant arrived at the Garden in 1982 as a giant seed.

Oh, Baby!

Above: This gigantic talipot palm, *Corypha umbraculifera*, is still a baby and is just starting to form a trunk. Conservatory manager John MacDougal gives some scale to this youngster, which has the largest leaves in the Climatron. In nature, talipot palms die after producing the largest inflorescence known, with 24 million flowers. An early European traveler wrote from India in 1681, "one single leaf is so broad that it will cover some fifteen to twenty men and keep them dry when it rains."

Medicine Plant

Below: Flower of the quinine tree, *Cinchona pubescens*. The tree's bark is the source of quinine, the bitter alkaloid that cures malaria. Quinine also steadies the heartbeat and provides the bitter flavoring in tonic water.

Food of the Gods

Left: Large pods on the cacao, or chocolate tree, hold seeds that are the source of cocoa. Chocolate is made by roasting and grinding cacao seeds, then adding fats, sugar, and sometimes milk. The scientific name, *Theobroma*, means "food of the Gods."

Ant Farm

Above: Several kinds of "ant-plants" can be studied at the Garden, including this *Myrmecodia tuberosa* from Borneo. Its roughened and swollen base is penetrated with numerous interconnecting galleries and chambers which act as a dormitory for ants. In nature, ants bring nutrient-rich material into the tuber, which helps fertilize the plant.

CACTI & SUCCULENTS

SUCCULENTS come in an incredible variety of shapes, sizes, colors, and textures, and you can even forget to water them on time. They grow slowly, so they don't take over the living room, and the cat won't chew on them. They are arguably the perfect houseplants.

Succulents have fleshy stems and/or leaves that store water and allow them to tolerate extremely adverse growing conditions. All cacti are considered succulents, but the group includes many plant families.

Houses are often too warm and dry for many plants, but succulents can thrive in high temperatures and low humidity. Many varieties are slow growers, and most require little care.

Most of us think of cacti as desert plants, but some succulents, such as the Christmas, Thanksgiving, Easter, and orchid cacti, come from subtropical areas where the light is less extreme and moisture is more abundant. Some gardeners refer to this group as "jungle cacti," because they are epiphytes that grow on trees in tropical forests.

Light

A hot southern window is a good spot for cacti and succulents, which usually require at least four hours of bright, direct light each day. Plants in direct light should be turned periodically so that all sides are exposed. Jungle cacti prefer medium light intensities and should never be placed in direct light except during the winter.

If you want to move a plant which has been grown in indirect light to direct light, do it gradually. The same is true if you move a plant outdoors for the summer. Even though a cactus has been in direct light in the house, it will be damaged if moved directly to full sun. First put the plants in filtered light, such as under a tree, to prevent the yellow-white foliage caused by sun scald.

Humidity

Central heating in winter makes houses especially dry, which suits most succulents just fine. Jungle cacti require higher humidity and should be placed on a tray of moistened rocks to promote blooming and flower retention.

Temperature

Although cacti and succulents thrive in warm indoor temperatures, some do much better with a cooler rest period during the winter. Windowsills and cool basements with bright light are ideal.

Watering

Overwatering is the most frequent cause of problems with cacti and succulents. Allow them to dry out thoroughly between waterings. Check their moisture level every two to three weeks by pushing your fingers into the soil — particles should not cling if conditions are dry — and become familiar with the weight of the pot when it is dry.

Plants in full sun will naturally dry out more quickly than those in filtered light. Water more frequently during the period of greatest growth, which occurs between March and October in the Midwest. In winter's slow growth period, water no more than once a month. Overwatering will result in root rot caused by fungal organisms.

> **They barely need water, and the cat won't chew on them. This could be the perfect houseplant.**

Jungle cacti should be kept evenly moist all year round, especially during the flowering period of late fall to early spring. When flowering has stopped, withhold water long enough to allow the top of the soil to dry out before rewatering.

Soil

Soil should match the moisture requirements of the plant. This is better than watering to compensate for the wrong mix. Soil also dictates drainage and regulates the nutrient supply.

All cacti and succulents require coarse soil with good drainage. Sand will create the proper drainage, and moisture retention is determined by how much sand is used. An appropriate mix for most cacti would consist of two parts sand and one part soil. For jungle cacti, mix one part sand with one part soil and one part peat to help retain moisture.

Fertilization

Succulents and cacti do not need a lot of fertilizer to grow. Use one-quarter to one-half the concentrations recommended for typical houseplants. Fertilize during the active growth phase from March through October. In winter, when succulents are in a dormant state and little obvious growth occurs, no fertilizer is necessary.

Repotting

Most cacti and succulents prefer to be pot-bound. In jungle cacti this promotes more frequent flowering. Repot only when top growth becomes unbalanced. The new pot should only be about an inch larger in diameter than the previous one. For a tall plant, the diameter of the pot should be one-half the height of the plant.

Repot when new growth begins in the spring. Avoid repotting during the dormant winter season, as part of the root system may be lost in the process and the plant will be very slow to recover.

Propagation

With their large storage systems for water and nutrients, cacti and succulents are among the easiest plants to propagate. Some cacti actually self-propagate by dropping parts of their stems, which may lie dormant for over a year and become quite desiccated before new roots emerge in response to wetter conditions.

Some cacti and succulents can be started from seed, but generally it is not worth the trouble. Because they grow so slowly, it can take from two to five years to establish a new plant.

Division is the most popular way to propagate cacti and succulents. Certain cacti will produce offsets, which are small bulb-like protrusions that stick out from the mother plant. These can simply be pinched off and potted after a couple days of drying at room temperature to allow a callus to form over the wound. Keep the soil damp for about four weeks. When you can lift the pot by grasping the leaves, you can be assured the plant has rooted.

Many cacti and succulents can be propagated by taking cuttings from their stems. Cut just above a node with a sharp, clean knife. Air dry the excised portion for two days, then push the base of the cutting into a potting mixture of sand and peat.

In a similar way, some succulents like *Sansevieria* can be propagated from leaf cuttings. Remove sections about two inches long and bury the end that was closest to the root system in soil mix. Roots will not form on cuttings that are potted upside-down.

Flowering

Although it may take a number of years, most small cacti and succulents will eventually flower. Larger cacti produce flowers infrequently. Some plants produce a tremendous number of blooms over a short period, and some only produce one or two. Some plants only bloom at night, producing flowers that only last for a single 24-hour period. Others flower in full sun.

Jungle cacti are the most prized flowering succulents. These plants are native to shaded tropical forests, so they do not fare well under intense light. They tend to flower during the shorter days of early winter, including the well-known Thanksgiving and Christmas cacti. These plants should be placed in a window which receives indirect light. They do best when they become pot-bound and the soil moisture is evenly maintained. Changing conditions in the middle of the flowering period will surely result in bud drop, which plagues many indoor gardeners.

— Steven D. Cline, Ph.D.
Manager, Kemper Center for Home Gardening

Cacti and Succulents Commonly Used as Houseplants

Torch plant	*Aloe aristata*
Tiger aloe	*Aloe variegata*
Star cactus	*Astrophytum* spp.
Old man cactus	*Cephalocereus senilis*
Hedge cactus	*Cereus* spp.
Rosary vine	*Ceropegia woodii*
Cleistocactus	*Cleistocactus* spp.
Jade plant	*Crassula portulacea,* *Crassula argentea*
Mexican firecracker	*Echeveria elegans*
Barrel cactus	*Echinocactus* spp.
Rainbow cactus	*Echinocereus dasyacanthus*
Easter lily cactus	*Echinopsis* spp.
Crown-of-thorns	*Euphorbia milii*
Tiger jaws	*Faucaria* spp.
Spider cactus	*Gymnocalycium denudatum*
Kalanchoe	*Kalanchoe* spp.
Living stones	*Lithops* spp.
Cob cactus	*Lobivia* spp.
Old lady cactus	*Mammillaria* spp.
Snowball cactus	*Mammillaria bocasana*
Silver cluster cactus	*Mammillaria prolifera*
Rose pincushion	*Mammillaria zeilmanniana*
Prickly pear	*Opuntia microdasys*
Moonstones	*Pachyphylium* spp.
Parodia	*Parodia* spp.
Crown cactus	*Rebutia* spp.
Chain cactus	*Rhipsalis* spp.
Mother-in-law's tongue	*Sansevieria* spp.
Thanksgiving cactus	*Schlumbergera trucata*
Christmas cactus	*Schlumbergera bridgesii*
Stonecrop	*Sedum* spp.
Donkey's tail	*Sedum morganianum*
String-of-beads	*Senecio rowleyanus*

Directory of Regional Plant Societies

African Violet Council	*Vera Eaklor*	351-4365
American Orchid Society (Mid-America Regional Judging Committee)	David Brown	727-2385
Belleville Area Rose Society	Dennis Nelson http://users.accessus.net/~rosenut	(618) 233-4609
Bonsai Society of Greater St. Louis	*Bob Harris*	352-0817
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Ellis Evans*	843-3767
Federated Garden Clubs of Missouri, Inc.	*June M. Kummer*	821-5075
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Gary Dunlap*	789-3604
Greater St. Louis Daylily Society	*Ronald Bilchik*	991-5008
Greater St. Louis Iris Society	*Jim Loveland*	349-4977
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Metro East Herb Club	*Joyce Wells*	(618) 235-4853
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*William Walley*	382-7339
O'Fallon Iris Society	*Vince Italian*	739-3481
Orchid Society of Greater St. Louis	*Ann Rogers*	441-9502
Rose Society of Greater St. Louis	*Phil Schorr*	843-8493
St. Louis Herb Society	*Barb Ottolini*	532-4644
St. Louis Horticultural Society	*Mindy Keyser*	994-0275
St. Louis Hosta Society	*Mirko Bolanovich*	965-7471
St. Louis Water Garden Society	*Sue Blumm*	894-7609
West County Daylily Club	*Chick Buehrig*	389-8261

This directory is published twice a year, in the January and July issues of the *Bulletin*. To change your listing, please send a written notice by December 1 or June 1 to: Bulletin Editor, Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, or call (314) 577-5123.

Calendar

January through April, 1998

"Powerful Grace Lies in Herbs and Plants"

A joint exhibition on herbal medicine, presented by the MBG Library and the Becker Medical Library at Washington University School of Medicine, 7th floor, 660 South Euclid Avenue, is open during regular library hours.

January 3 - 5
Saturday - Monday

Pre-Inventory Sale

9 a.m. to 5 p.m. daily, Garden Gate Shop. **From 3 to 5 p.m. on Tuesday, January 6, the Shop will be closed for inventory.**

January 15 - March 6

"Photographs for the Outdoors"

9 a.m. to 5 p.m. daily, Monsanto Hall. 42 magnificent black and white photographs by Robert Lindholm, a former winner of the Ansel Adams Award from the Sierra Club, are displayed with excerpts from writings on conservation by Charles A. Lindbergh. Lindholm, a former assistant attorney general for the state of Missouri, specialized in environmental law for 22 years before his retirement. His work has been widely published and exhibited nationally. Free with Garden admission.

January 22 - March 26

Orchid Paintings by Marion Sheehan

9 a.m. to 5 p.m. daily, Grigg Hall. Exquisite and colorful paintings of orchids by the nationally known botanical illustrator Marion Sheehan (see page 15). Free with Garden admission.

January 23 Friday

Members' Preview – Orchid Show

5:30 to 7:30 p.m., Ridgway Center. Enjoy the first look at the annual orchid show, "Egyptian Oasis," and meet orchid experts Tom and Marion Sheehan (see page 15). Entertainment, cash bar. Dinner buffet available in the Gardenview Restaurant, $10.95 per person. Garden Gate Shop will be open. Free, for members only. See back cover for details.

January 24 Saturday

"America's Endangered Species: Don't Say Good-Bye"

7 p.m. on KSDK (NBC), see a new National Geographic Special featuring the work of Susan Middleton and David Liitschwager, whose splendid photographs were displayed in the "Witness" exhibit at the Garden last spring.

February 8 Sunday

"Mural Magic"

1:30 p.m., Shoenberg Auditorium. Explore the art of mural painting with Robert Ketchens, a well-known St. Louis artist and teacher. Presented as part of Black History Month, Ketchens draws on his African-American heritage for a unique perspective on the history of murals, from prehistoric cave drawings to contemporary paintings. Free with Garden admission.

February 14 Saturday

Cake Decorating Extravaganza: "Sugared & Spiced & Everything Iced"

9 a.m. to 5 p.m., Monsanto Hall. Especially for Valentine's Day, a glorious display of the art of the sweet tooth. Cake decorators demonstrate their craft and exhibit some of their most extraordinary creations. Visitors who are romantically inspired can preview the latest in wedding cake designs, all with a floral or botanical theme. Free with Garden admission.

January 24 - March 15

Annual Orchid Show: "Egyptian Oasis"

9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. Flower Show Admission: $2 adults, $1 seniors age 65 and over, free to children age 12 and under, and free to members. See back cover for details.

Special Winter Schedules

- Trams operate on a reduced schedule November through February. They leave the Ridgway Center at 10 a.m., 10:30 a.m., 2 p.m., and 2:30 p.m.
- Free Walking Tours are offered daily by the Garden Guides. Meet at the ticket counter at 1 p.m.
- Tower Grove House is closed during the month of January.
- Unannounced schedule changes may occur due to weather and other conditions.

February 22 Sunday

Celebrate the Gospel

2 p.m., Shoenberg Auditorium. Our popular annual Gospel concert returns to celebrate Black History Month with a lineup guaranteed to uplift the soul! Featured choirs include Antioch Baptist Church, St. Alphonsus "Rock" Church, Clayton Missionary Baptist Church, and some very special guest appearances. Free with Garden admission.

Members' Days

On Members' Days, Garden members receive free tram rides, additional discounts in the Garden Gate Shop, and 10% off in the Gardenview Restaurant.

January 31 Saturday

"Incredible and Exotic Orchids"

11 a.m., Shoenberg Auditorium. Visit the orchid show and enjoy a lecture by Marilyn LeDoux, former curator of the Garden's orchid collection. Seating is on a first-come, first-served basis. Free, for members only.

February 18 Wednesday

"Tea & Camellias"

11 a.m., Shoenberg Auditorium. Susan and Walter Smith of Cornucopia, Inc. of Kirkwood take a look at how the growing and exporting of tea, *Camellia sinensis*, has affected economies and societies worldwide. Sample some delicious teas and be sure to tour the camellia display blooming in the Linnean House. Seating is on a first-come, first-served basis. Free, for members only.

anuary 17 and 31, February 14 and 28

A Call for Outdoor Volunteers

Over the past two winters, Shaw Arboretum staff and volunteers have cleared approximately ten acres of glade habitat. The workers use low impact techniques to harvest the cedar trees, which are made into lumber and fenceposts. Prescribed burning is done with a trained rew of fire specialists, on days determined s safe by local fire authorities.

Glade restoration is heavy, dirty work, but he rewards are great. This winter the Arboretum staff is organizing Saturday work rews for January 17 and 31, and February 4 and 28. If you would like to be a part of helping to restore Missouri's natural heritage, please call the Arboretum at (314) 451-3512.

anuary 22 – 25, Thursday – Sunday

Arboretum Offers Fire Management Training Course

Shaw Arboretum will host a four-day raining workshop in safe methods and techniques for using prescribed burning to elp manage vegetation in natural areas. The course will be equivalent to training eceived by technicians of the U.S. Forest ervice, Missouri Department of Conservation, and State Park personnel. The workshop will be led by Bob Stanton of Prescribed Fire Consulting, Inc. of Batavia, Illinois.

The workshop is planned for Arboretum staff and local fire officials, but a limited number of spaces are available for the public. The fee for the workshop is $100 per person, and all participants will be expected to complete the full course. To register, please call the Arboretum at (314) 451-3512.

Applications Due in January

Master Ecologists Needed

Litzsinger Road Ecology Center (LREC) is recruiting adult volunteers to be trained as Master Ecologists. Participants will learn about ecology, field research techniques, and the art of teaching in the outdoors. Master Ecologists assist LREC staff during education activities.

"We're looking for people who enjoy being outdoors and who want to help students build a foundation in ecology. If you are curious and enthusiastic, if you like to learn, and if you can be relied on to nurture students and the environment, then you are just the person we're looking for," said Celeste Prussia, director of the Center.

The next class is scheduled for 12 consecutive Mondays, February 23 through May 11. Trainees will have opportunities to practice under the mentorship of veteran Master Ecologists, working with students doing field studies at the LREC. To qualify for certification, all trainees are required to complete the course plus 50 hours of volunteer service at the Center. Personal enrichment opportunities are offered to all participants throughout the year.

Interviews for positions in the spring training class will be held in January. For more information or an application, please call Cindy Bruns at (314) 577-9424.

February 24

Horticulture Open House – Attention Gardeners

5:30 to 7:30 p.m., Beaumont Room, Ridgway Center

If you're interested in helping out with the planting, pruning, mulching, and general chores on the Garden grounds, come meet staff supervisors of the Horticulture Division and learn about volunteer opportunities. Applicants need to be available to work at least three hours during the day, one day a week, Monday through Friday. Light refreshments will be served.

Please make reservations to attend the open house by February 13. Call Jeanne McGilligan, manager of volunteer programs, at (314) 577-5187.

"The Tropics After Hours"

THE CLIMATRON was a hot place to start off a cool Saturday night on November 8, as the Members' Board hosted a crowd to the Caribbean rhythms of a steel drum band. The successful evening welcomed 187 young partygoers to the Garden. Twenty-two of the guests became new Garden members.

Thanks go to the committee for the success of the evening. From left: Ann Bowen, president of the Members' Board; Susie Schulte and Julie Schnuck, co-chairs; and Mary Phelan, honorary chair.

Far left: Caribbean music for the tropical evening was supplied by the Oswald Moses trio.

Left: Virginia and John Howell stayed dry under the Climatron waterfall during the party.

Announcing: 1998 Members' Days

January 31 *Saturday*
"Incredible and Exotic Orchids"
with Marilyn LeDoux

February 18 *Wednesday*
"Tea & Camellias" by Cornucopia, Inc.

March 12 *Thursday*
"Art in Bloom" with Jan MacDougal

April 18 *Saturday*
Bird Walk at Shaw Arboretum

May 12 *Tuesday*
"Some Things Old, Some Things New" —
Gardening with Chip Tynan

June 5 *Friday*
Big Band Night with the
Gateway City Big Band

July 21 *Tuesday*
"Garden Photography"
with Jack Jennings

August 19 *Wednesday*
"Medicinal Herbs"

September 17 *Thursday*
"Putting Your Garden to Bed"

October 14 *Wednesday*
"Following Henry Shaw through Italy,"
with John Karel

November 12 *Tuesday*
Holiday Decorating

December 12 *Saturday*
Holiday Concert

Save the Date! Friday, May 29, 1998

A Gala for the Garden

Plan now to attend a magical cabaret evening in a setting that will give the "impression" you have travelled to Monet's garden at Giverny! Watch for details in the next issue of the *Bulletin*.

Do You Know What Your Members' Benefits Are?

If you are a Garden member with a regular or senior level membership or above, you are entitled to all of the following yearly benefits:

- **Free admission** to the Garden, the Gardenview Restaurant, Tower Grove House, and Shaw Arboretum for two adults and all children under the age of 18;
- The *Bulletin*, published six times a year;
- **A 10% discount** at the Garden Gate Shop, plus extra discounts during annual sales;
- **Special members-only parties, sales, and events** throughout the year, including opening night previews of flower shows;
- **Monthly Members' Days**, featuring a special event or activity exclusively for members and including free tram rides, extra discounts on selected merchandise in the Garden Gate Shop, and a 10% discount in the Gardenview Restaurant;
- **Special discounts** on fees for education courses and rentals of Garden facilities;
- **Reciprocal free admission** to hundreds of botanical gardens and arboreta around the United States.

And Did You Know —

"Contributing Plus" Is A Great Deal!

Higher annual membership contributions help to sustain the Garden and support its programs.

A Contributing Plus Membership, available for just $100 per year, entitles you to all the benefits above, plus:

- **Free admission for up to ten guests with each visit, including special Garden events, such as the Japanese Festival, Best of Missouri Market, and Carols in the Garden, and four complimentary tram tour tickets.**

Additional privileges and benefits are available for higher levels of membership. Please call the Membership Office at (314) 577-5118 for more information.

GARDEN GATE SHOP

All proceeds from sales in the Garden Gate Shop support the Missouri Botanical Garden.

Annual Orchid Show

Visit the Orchid Show and take home some special orchids from the Garden Gate Shop, plus potting mixes, fertilizers, wire supports, and planters at a special 20 percent discount. For the Orchid Show the Shop is also featuring the MBG Orchid tee shirt, sweatshirt, and mock turtleneck.

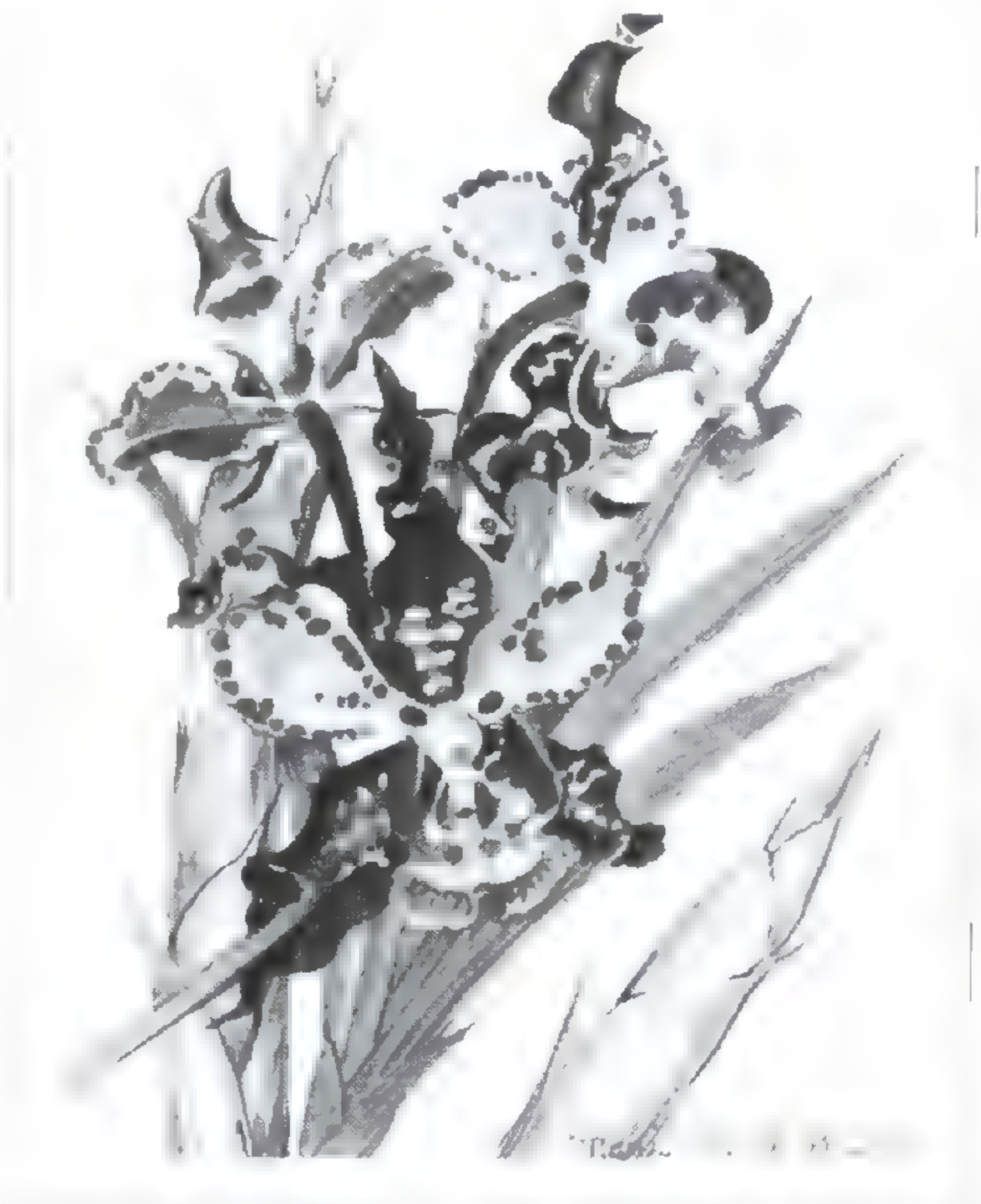
Featuring —
An Illustrated Survey of Orchid Genera, by Tom and Marion Sheehan
Timber Press, $99.95.

Meet Tom and Marion Sheehan at the members' premiere and preview parties for the 1998 Orchid Show and see an exhibit of Marion Sheehan's paintings in Grigg Hall, the lower lobby of the Ridgway Center.

Tom and Marion Sheehan are nationally renowned experts on orchids who have produced a popular monthly column on orchids for the American Orchid Society Bulletin for over 25 years. Their new book greatly expands their enormously popular 1979 book, *Orchid Genera Illustrated*, to include almost 100 new genera. With beautiful illustrations and a minimum of technical jargon, the new book provides the necessary framework for both amateur and professional orchid growers who seek to study and understand these amazingly diverse plants.

Tom Sheehan is the author of three previous books and more than 350 scientific and popular articles. He is professor and chairman emeritus of Environmental Horticulture at the University of Florida.

Marion Sheehan is a leading botanical illustrator and author whose work has been extensively published and exhibited in the United States and abroad. She is a retired professor of Environmental Horticulture at the University of Florida. The Sheehans are both accredited orchid judges and honorary life members of the American Orchid Society.



The Garden Gate Shop will have prints and notecards of Marion Sheehan's paintings for sale.

January 6 Tuesday

Shop Closed for Inventory

The Shop will close for inventory at 3 p.m. It will reopen January 7 at 9 a.m.

Members' Day January 31

"Incredible and Exotic Orchids"

In addition to their regular ten percent discount, members receive an additional five percent off all orchids, orchid-growing supplies, and orchid accessories.

Members' Day February 18

"Tea & Camellias"

In addition to their regular ten percent discount, members receive an additional five percent off all jewelry.

For Your Valentine

- **Bright Red Tulips**
- **Fragrant Paperwhites**
- **Purple Hyacinths**
- **White Begonias**
- **Heart-shaped Anthuriums**
- ***Plants of Love: The History of Aphrodisiacs and a Guide to their Indentification and Use*, by Christian Rätsch, Ten Speed Press, 205 pages, $19.95**

Thank You, Holiday Decorators

We extend our warmest appreciation to the volunteers who decorated Tower Grove House for the holidays, including staff members from Tower Grove House and the Horticulture Division:

Joan Abeln
Botanicals on the Park
Four Winds Garden Club
Kirkwood Herb Guild
Mason Jar Questers
Missouri Botanical Garden Members' Board
Southwoods Garden Club of Shrewsbury
St. Louis Herb Society
The Twenty-five Gardeners of Kirkwood
Tower Grove House Historical Committee
Webster Groves Garden Club #4

Henry Shaw Medal Presented to Bill McKibben

CLIFF WILLIS

Bill McKibben received the Henry Shaw Medal at a dinner for major Garden donors on October 15, 1997. He is shown here (at left) with William H. T. Bush, president of the Board of Trustees, who presented the medal. McKibben, the best-selling author of *Hope, Human and Wild* and *The End of Nature*, is nationally recognized for his writings on conservation and environmental issues.

The Henry Shaw Cactus Society

The Henry Shaw Cactus Society has been going strong at the Garden for 55 years, but desert plants have been associated with the Missouri Botanical Garden since the 1830s.

Dr. George Engelmann, scientific advisor to Henry Shaw, took an intense interest in discovery of plants of the American West, particularly conifers and cacti. Dr. Asa Gray of Harvard, another advisor to Shaw and America's premier botanist, wrote that "Dr. Engelmann's authority is of the very highest," and Engelmann is credited with naming and providing the first published descriptions of most of the species of cacti found in the United States.[1]

In the 1920s a craze for cacti swept the nation, and a young man on the Garden's horticulture staff found himself devoting more and more time to the popular cactus house display. Ladislas Cutak, always called "Lad," joined the staff in 1927 and eventually became superintendant of the greenhouses. At the age of 26 he was described in the Globe Democrat as "one of the country's outstanding authorities on cacti." The "Roaring Twenties" came and went, but cacti have remained among the most popular plants at the Garden.

Lad Cutak is credited with founding the Henry Shaw Cactus Society in 1942, and the group has been active at the Garden ever since. Pat Thomann, the current president and a member of the Society for more than 20 years, said, "It's a real family affair. Everybody has a good time working together and we all love the plants. They have so much variety and there's always something new."

It is hard to tell what the 150 members of the Cactus Society enjoy the most, their amazing plants or each other's company. The group meets monthly at the Garden, where they maintain a voluminous library and exchange knowledge and enthusiasm about growing cacti. Novices are welcomed. The group is affiliated with the Cactus and Succulent Society of America and is one of the largest local groups in the United States.

The Henry Shaw Cactus Society's eight-day show and sale is a highlight of summer at the Garden every year. Judging is held in about 100 classes, including a special junior division for ages 16 and under, and ribbons and a traveling trophy are awarded. Most of the proceeds from the annual show are donated to the Garden.

CLIFF WILLIS

Top: Cactus Society volunteers (from left): Steve Feiner, Warren "Tab" Tabachik, Pat Thomann, and Carole Sanders.

Above: Tab and Steve at work in the C-3 greenhouse, where the group maintains the Garden's valuable collection of desert plants, including more than 75 rare and endangered species.

Society members give the Garden more than financial support. Volunteers from the group routinely helped out in the Desert House, and when the crumbling 1913 structure was closed for demolition in 1994, the Society stepped in to help salvage and maintain the plants.

Society members offered space in their own greenhouses to valuable specimens in the Garden's collection. Many other plants are kept in the C-3 production greenhouse, where volunteers from the Society have assumed full responsibility for their care until funds can be raised to build a new Desert House.

Over 75 endangered species are currently housed in the C-3 greenhouse, together with hundreds of other cacti and succulents. Four or five Society members come in every Friday to care for the plants. Pat Thomann also comes in on Wednesdays to water the plants.

Moving the cacti out of the Desert House was a challenge. Many of the older plants were tall and heavy, and special cradles had to be built to lift them. Steve Feiner, a member of the Cactus Society, designed and built the frames. Steve and Warren "Tab" Tabachik also made the potting bench and plant shelves in C-3. This year the Society is donating new storage benches made of recycled plastic.

All of the plants in C-3 have been repotted, and this winter many of the cacti bloomed for the first time since they were moved. Last January the Society completed the inventory of all the plants, the first time the collection had been fully cataloged.

"It is impossible to overstate the importance of the Henry Shaw Cactus Society's contribution," said Peter H. Raven, director. "Their expert assistance has made it possible to preserve our historic collection until a new facility can be built, and we are immeasurably grateful for their friendship and support."

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[1] Faherty, William Barnaby S.J., *Henry Shaw: His Life and Legacies* (University of Missouri Press, 1987), p. 85.

National Cactus Society Makes Research Grant

The Cactus and Succulent Society of America made a 1997 research grant to Mark Olson, a Ph.D. candidate at Washington University who is studying with Peter Raven. Olson is working on the genus *Moringa*, the only genus in the family Moringaceae. The grant helps to support Olson's plant collecting in Oman, Kenya, and Madagascar.

Neighborhood Greening in Action

Soulard Community Garden

THE NEW ARBOR erected in October at the Soulard Community Garden brought neighbors together just like an old-fashioned barn raising — shared labor and skills producing a quick, high quality job.

Soulard Garden was established in 1992 on a vacant trash-filled lot on 9th Street between Lami and Barton. With support from Gateway, neighborhood residents and volunteers built raised beds for vegetable gardening, and the number of volunteers and planting beds has increased over the years.

In 1997, the group applied for a Neighborhood Greening project. In addition to the entrance arbor, the proposal included installing water lines and an herb garden, which will be shared with a nearby elementary school.

Gateway is expecting a record number of applications for 1998 Neighborhood Greening projects. Awards will be announced in January.

Gateway volunteer Tom Hardy (in overalls) works with neighborhood gardeners to raise the new entrance arbor at Soulard Garden. The arbor will be planted with roses this spring, and a wedding is already planned to take place there next summer.

Worms in the Classroom!

"At the beginning they say, 'Oh, it's so yucky!' But in an hour all the worms have names," said Master Gardener Judy Moskoff. Learning has never been so much fun!

With a grant from the St. Louis Jefferson County Solid Waste District, Gateway Greening is installing special compost bins in classrooms in St. Louis City, St. Louis County, and Jefferson County. Master Gardeners and other volunteers introduce students and teachers to the red wigglers and demonstrate how their clean, odor-free compost can be used in school gardens.

Classes use vermicomposting to learn about decomposition, the food web, taking responsibility for living creatures, and more. And they can feed the worms their scraps from lunch!

Interested?

If you are interested in becoming a Gateway volunteer, or if you would like information about getting a worm composting unit for a classroom, please call Gateway Greening at (314) 577-9484.

Brian LeDoux, manager of the Floral Display Department, at work on the one-fifth-size figure of Ramses II that he sculpted out of styrofoam for the 1998 Orchid Show.

Behind the Scenes

Bringing Flower Shows To Life

The Garden's colorful annual flower shows take the contributions of dozens of volunteers working under the direction of Brian LeDoux of the Floral Display Department. Brian and his assistant, Jody Vogler, design and plan the shows well over a year in advance.

Volunteers do everything from helping to raise the plants to building props to helping with the final installation, which can take several days. Among the many volunteers who helped with the Orchid Show and Holiday Flower Show this year are Steve Feiner, who gave 279 hours of service; Don "Jake" Jacobsmeyer, 208 hours; and Linda Dollard, 135 hours.

Steve Feiner, a volunteer in Floral Display and a member of the Henry Shaw Cactus Society, designed and built many of the animated figures that enchanted visitors at the 1997 Holiday Flower Show, including this wonderful spinning top.

CLIFF WILLIS

Participants at the symposium included (from left): Michael Novacek, Susana Magallón-Puebla, Robyn Burnham, David Grimaldi, Peter Raven, Peter Crane, Kaj Raunsgaard Pedersen, Else Marie Friis, Alan Graham, Patrick Herendeen, Russ Graham, Steven Manchester, and Eric Grimm.

44th Annual Systematics Symposium

"Origin of Modern Terrestrial Ecosystems"

THIS YEAR the annual Systematics Symposium, held at the Garden October 17-18, featured the topic "The Origin of Modern Terrestrial Ecosystems: Fossils, Phylogeny and Biogeography." Over 450 scientists from the United States and abroad attended.

The past few years have seen many new developments in the study of paleontology, and many of our ideas of past life forms are subject to change. Presentations ranged from early flowering plants and their insect pollinators, to the effects of climate change on plants and animals, to the rise and fall of the dinosaurs.

During the two-day meeting, participants were treated to guided tours of the Garden's new Research Facility, The Monsanto Center. At the symposium dinner on Saturday evening, Dr. Paul E. Berry was honored for his work on the *Flora of the Venezuelan Guayana* as an associate curator on the Garden staff since 1988. Berry is joining the faculty of the University of Wisconsin-Madison, where he has been appointed associate professor and director of the herbarium. He will continue to direct the Flora of the Venezuelan Guayana Project.

Index to the *Annals* Is Published

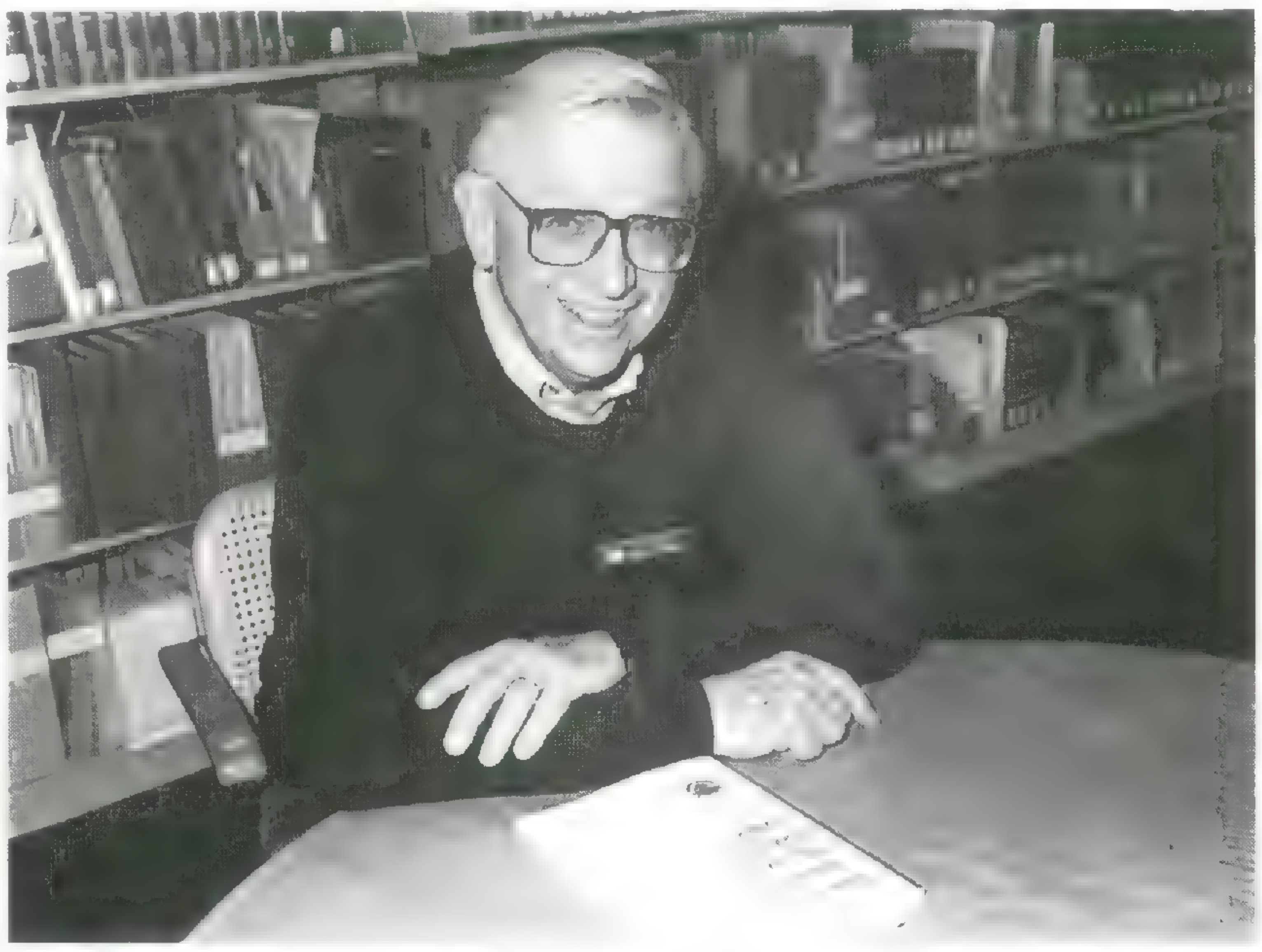
IN JUNE 1997, the Garden published the first complete *Index to the Annals of the Missouri Botanical Garden*, Volumes 1 through 80. Six years in preparation, the landmark reference work was compiled and edited by Robert F. Erickson, a volunteer in the Garden library.

The *Annals* has been published continuously since 1914. Today it is considered to be one of the world's leading journals of botanical science. Although partial indexes exist for some early volumes, the new *Index* is the first to include comprehensive listings of authors, geographical place names, botanical families, and other subject headings.

Erickson began the project in 1991 and finished in 1996. He had never worked on a computer or done any indexing, and he began compiling the information on 3 x 5 typed index cards. The cards grew to number some 7,000 before he began making entries directly into a computerized database.

The *Index* covers volumes published from 1914 through 1993. Erickson is currently at work on a supplement, which will include volumes of the *Annals* published from 1994 through 1998.

The *Index* project was originally suggested and directed by Dale Johnson, formerly of the library staff, now with Timber Press. Volunteer Dennis Pinkerton and Garden staff provided assistance.



Robert Erickson with a copy of the *Index to the Annals of the Missouri Botanical Garden*.

Volunteer Profile —

Robert "Eric" Erickson

ROBERT F. "ERIC" ERICKSON began volunteering in the Garden library in 1987, together with his wife Sally. A professor of history at Southern Illinois University at Edwardsville from 1959 to 1986, Erickson specialized in European history and served as department chair and dean of the School of Social Sciences before his retirement. He graduated from Cornell University in 1948 and earned his M.A. and Ph.D. degrees at the University of Illinois at Champaign, graduating in 1955. He was on the faculty at Butler University in Indianapolis before coming to SIU in 1959.

"Working on the *Index* is interesting and challenging," Erickson said, "and the biggest challenge is learning all the botanical terms." In addition to the *Index* project, Erickson is compiling an inventory of the large and valuable collection of botanical reprints that belonged to William Trelease, the Garden's first director. He has recently completed articles on 12 botanists, including Trelease, for *American National Biography*, a new dictionary from Oxford University Press.

Sally Erickson, a retired speech pathologist, volunteers in the cataloging department of the Garden library. When the Ericksons aren't at the Garden, they enjoy travelling, camping, and gardening.

New from the MBG Learning Network

Aquatic Ecosystems: "What's It Like Where You Live?"

In more than 5,000 schools in all 50 states, elementary and middle school children are exploring the natural world with videos produced by the Evergreen Project of St. Louis in collaboration with the Garden's Education Division. The 30-minute videos, accompanied by printed lessons, student journals, and reference CDs, offer an exciting and challenging way to learn. The series also encourages students to use the Garden's nationally-acclaimed Website, MBGnet, to share what they discover with other children around the world.

"What's It Like Where You Live?" includes four packages that present climates and ecosystems around the world. "Biomes One" covers deserts, temperate deciduous forests, and grasslands. "Biomes Two" treats the tundra, the taiga, and rain forest regions. The recently completed "Freshwater Ecosystems" includes rivers and streams, ponds and lakes, and wetlands. "Marine Ecosystems," to be released early in 1998, covers temperate and tropical oceans and shorelines.

The videos feature students and teachers filmed on location around the world as they investigate underwater coral reefs, hike through rain forest or frozen tundra, float down the Mississippi, or fly over vast boreal forests in a helicopter. The videos also feature students from the places they visit, including Belize, Alaska, and the Florida Everglades, and reports from schools in Siberia, Finland, and Australia.

"The videos have been a very successful way to get students interested in science," said Larry DeBuhr, the Garden's director of education. "They see what scientists really do and are encouraged to do their own research."

Earlier video series, titled "The Environment," "Biology of Plants," and "Life Habitats," were introduced beginning in 1993.

Top: Students share information with classes around the world via MBGNet, part of the Garden's Website. Right: Investigating aquatic life while filming on location in the estuaries of North Carolina.

Howard Hughes Medical Institute Supports Aquatic Ecology Program

A $100,000 grant to the Garden from the Howard Hughes Medical Institute will support professional development training for 40 teachers of grades 4-8 over the next four years. From January to May each year, ten teachers will attend five two-day training workshops on aquatic ecology and how to teach it both in the classroom and outdoors. In the summer, the teachers will practice the new techniques in teams while teaching summer science classes to children aged 7-13, supervised by the Garden education staff. The summer science classes will be held at the Garden, Litzsinger Road Ecology Center, and Shaw Arboretum.

The Aquatic Ecology Institute builds on a successful model the Garden developed for elementary teachers, the five-year Natural Science Institute, which concludes in 1998. It was also made possible by a grant from the Howard Hughes Medical Institute, which supports a wide range of activities at institutions throughout the United States to strengthen science education and improve scientific literacy.

Barbara Addelson, the Garden's manager of science outreach, said, "The summer science camp really plays two roles. It provides a valuable opportunity for teachers to work with their peers and to practice new ideas outside the demanding schedules of their classrooms. The summer classes also give children a chance to explore science in an outdoor setting and increase their awareness of science as a potential career. We are very grateful to the Howard Hughes Medical Institute for their ongoing support."

Serpentine Wall Restored

RESTORATION was completed in September on the serpentine brick wall at Shaw Arboretum. It was truly a labor of love for many local residents. Tom Noonan, a grandson of Ray Muenks, one of the original bricklayers, was the first to volunteer. Carl Jung and Elsie Becker, son and daughter of another original bricklayer, John Jung, still live near the Arboretum, and their sister Sonia Simpson wrote to share her memories of their father and his interest in the project.

The wall was completed in 1946. It was patterned after one designed by Thomas Jefferson for the University of Virginia. Visitors can see the serpentine wall near the Wolf Run Trail.

Leonard "Red" Doorack, a retired local brick contractor, led the crew of volunteers and staff who worked on the wall.

A PASSION FOR FLOWERS — *Designer Carolyn Roehm demonstrated her techniques for creating beautiful floral arrangements at a lecture in Shoenberg Auditorium on November 24. Ms. Roehm signed copies of her new book,* A Passion for Flowers, *after the lecture.*

NEW in the Brookings Interpretive Center

Eco-Carts Make Learning Fun

HOW can an ice cube run a fan? Is rot the same as rust? What do rubber, cocoa, and paper have in common? Now visitors of all ages can explore natural science and learn about ecology with the Garden's new Eco-Cart demonstrations in the Brookings Interpretive Center.

Each 20 to 30 minute presentation delves into one ecological topic. Whether the topic is energy, chemical reactions, or decomposition, visitors will take home new ideas about ways to protect planet Earth.

Teachers can select a science topic that complements their curriculum and sign their classes up for some hands-on activities and surprises. Families and other visitors can drop in for free Eco-Cart demonstrations on Saturdays.

Development of the Eco-Carts was made possible by the generosity of the McDonnell Douglas Foundation. Staffing is supported by the Edward Chase Garvey Foundation.

FREE DEMONSTRATIONS on SATURDAYS
Free demonstrations will be presented on Saturdays at four mid-day times. Ask for the schedule at the Ticket Counter when you arrive.

School and youth groups can schedule presentations at a cost of $30 per session by calling the Education Division at (314) 577-5140 a month in advance.

CALENDAR OF ECO-CART DEMONSTRATIONS

JANUARY	**Botanical Bonanza! (Plant Products)**
	Banking on Biodiversity (Biodiversity)
FEBRUARY	**Waterworks (Water Cycle)**
	It's Energy That Makes the World Go 'Round (Energy)

CLIFF WILLIS

A PRIZE-WINNING VISIT — *This year the millionth visitor to Botanica, The Wichita Gardens, received a prize that included a visit to the Missouri Botanical Garden. In October the Garden welcomed Doug Terhune, a landscape designer from Wichita, who was Botanica's millionth visitor. Terhune received a tour of the grounds and met with several members of the Horticulture Division. Pictured here at the Kemper Center are (back row, from left): Casey Cornwell of Wichita, Doug Terhune, and Dr. Shannon Smith, MBG director of horticulture. Kneeling, from left: MBG horticulture staffers June Hutson, Shirley Dommer, and Dr. Steve Cline.*

Eliot Paine Elected Chairman of CPC Board of Trustees

C. W. ELIOT PAINE of Ohio was elected chairman of the Center for Plant Conservation (CPC) Board of Trustees on October 24 during a board meeting hosted by Bok Tower Gardens in Lake Wales, Florida. Paine succeeds Mr. William A. Truslow, who has served as chairman since the Center's inception in 1984. "It is truly an honor for me and the Board of Trustees to welcome Eliot, whose past accomplishments and many years of successful experience will certainly enable CPC to grow as the preeminent plant conservation program in America," said Dr. Brien A. Meilleur, CPC president and executive director. "We also are indeed grateful and exceedingly appreciative for Bill's many years of leadership, service, and friendship as he steps down as chairman."

Paine began his career in 1951 with the Holden Arboretum in Mentor, Ohio, where he ultimately served as director for 12 years until 1995, and is presently director emeritus. He has been a board member of CPC, American Association of Botanical Gardens and Arboreta, and the American Horticultural Society.

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Bricks donated to the Members' Entry Court at the William T. Kemper Center for Home Gardening between October 1, 1997, and November 30, 1997:

BRONZE SIGNATURE BRICKS

Irene Steinbruegge Barco
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Jack Henry Miles
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Marie L. Miller
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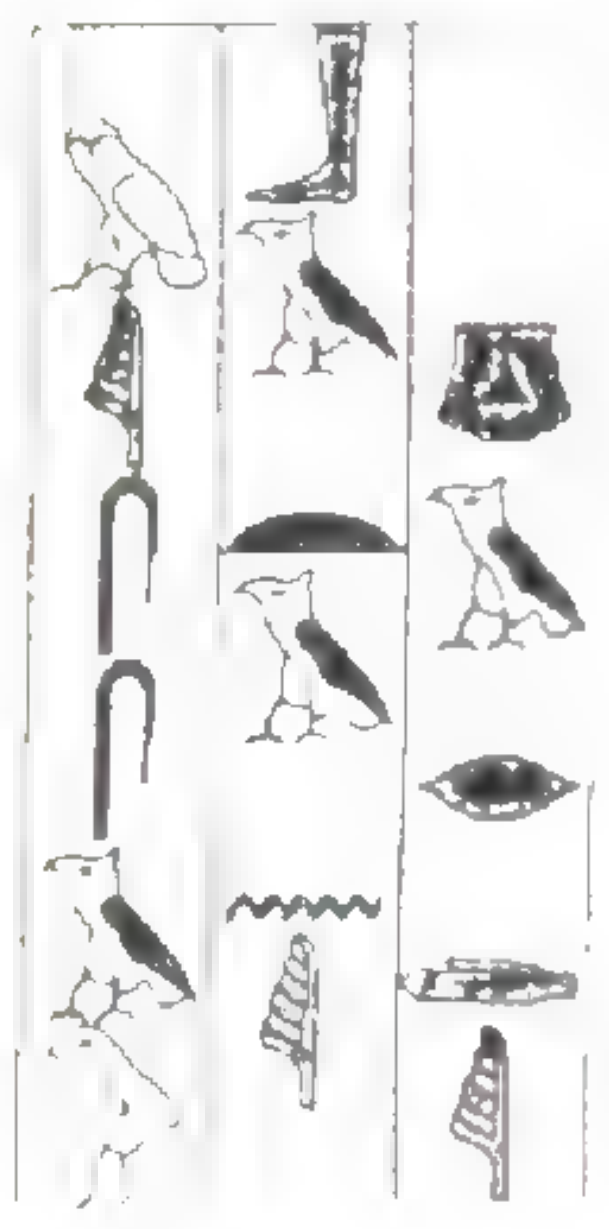
Printed on recycled paper

1998 Orchid Show

Egyptian Oasis

January 24 — March 15
9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall

Discover an improbable oasis of vivid color along the Nile of Ancient Egypt, where a 20-foot reproduction of Ramses II from the temple at Abu Simbel stands guard over hundreds of spectacular orchid blooms. The popular annual show features colorful blooming plants from the Garden's award-winning collection of more than 10,000 orchids. For a look at what goes into creating such a show, see page 17.



Flower Show Admission: $2 adults, $1 seniors age 65 and over, free to children age 12 and under. Free to Garden members.

Look for hieroglyphic cartouches decorating the walls of the Egyptian temples at the flower show. According to the Online Hieroglyphics Translator, they spell out "Nefertiti," "Ramses II," "Orchids Along the Nile," and "Missouri Botanical Garden" (shown).

WINTERTIME DELIGHT

Missouri Botanical Garden BULLETIN (ISSN 0026-6507)
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Missouri
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Garden

MARCH/APRIL
1998

VOLUME LXXXVI
NUMBER TWO

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Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

I AM DELIGHTED to announce some wonderful news — we received the final gifts and pledges to complete the $37 million Partnership Campaign as this issue went to press. The next issue of the *Bulletin* will cover the highlights of the campaign in full, but I want to take this opportunity to thank everyone who supported the Partnership Campaign. In particular I would like to recognize the extraordinary contributions of our Board of Trustees, who made this capital fund drive a success. Their leadership and commitment have always been the cornerstone of the Garden's strength, and on behalf of all friends of the Garden, I extend our deepest appreciation for their support. Please see the story on page 4, which introduces David Kemper, the new president of the Board of Trustees, and the new officers of the Board. We also salute the exceptional contributions of the outgoing president, William Bush.

The Monsanto Center, our splendid new research facility, is the hallmark of the Partnership Campaign and a landmark of sustainable architecture. Please join us at the exclusive previews especially for Garden members on March 12 and 13 and take a guided tour of this remarkable facility.

You will find something for everyone this spring at GardenExpo, four weekends of fun and informative activities for home gardeners. And the whole family will delight in EarthFriends' Day on April 11. It is the Garden's unique celebration of biodiversity, where you will have a great time learning about the incredible variety of life on our planet.

Come and enjoy all the color and fun of springtime at the Garden!

— *Peter H. Raven, Director*

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400

24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522

You will need a touch-tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401

Information on jobs and volunteer opportunities at the Garden is available with a touch-tone phone. Listings are updated bi-weekly.

Horticultural Answer Service: 577-5143

9:00 a.m. to noon, Monday through Friday.

Master Composter Hotline: (314)577-9555

9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:
http://www.mobot.org/

Mailing Address:

Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours

9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Kemper Center for Home Gardening: 9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: open until 8 p.m., Tuesday through Saturday. Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop: 9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: 9 a.m. to 6:30 p.m. daily, Friday and Saturday open until 7 p.m. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant: Buffet service during hours the grounds are open.

Tower Grove House: 9:45 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January. Admission is free for Garden members.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 40 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. Admission is free for Garden members. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House open 10 a.m. to 4 p.m. daily, closed on Mondays. For information call (314) 451-3512.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this Bulletin and mail to:

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Missouri Botanical Garden
P.O. Box 299
St. Louis, MO 63166-0299

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State ______ Zip ________

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Date effective: ________

Street ____________

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State ______ Zip ________

On the Cover

Celebrate springtime with four fabulous weekends of GardenExpo.
– *Photo by Jack Jennings*

Editor
Susan Wooleyhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members For information, please call (314) 577-5118.

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GardenExpo

GardenExpo 1998

Four Weekends of Fun

10 a.m. to 5 p.m. daily

Celebrate spring and another year of gardening at the William T. Kemper Center for Home Gardening. Each weekend features special guests, entertainment, workshops, tours, special flower shows, Garden Gate Shop promotions, food, and lots more! The Kids' Corner makes it fun for the whole family. GardenExpo is free with Garden admission.

Daily at the Kemper Center for Home Gardening:

- **Information on all GardenExpo activities**
- **Cappuccino Wagon or Food Court**
- **Treasure Hunt in the Garden for Kids**
- **Attendance Prize Drawings**

April 18 & 19

Digging In!

Weekend Highlights

- **Rose Society Sale**, Orthwein Display Hall
- **The Great Perennial Divide**, hosted by Gateway Greening, Kemper Center
- **Annual Spring Plant Sale**, Garden Gate Shop
- **Panel Discussion**: "Getting Started," MBG Staff, 1 p.m. Shoenberg Auditorium

Hands-on Workshops

"Selection and Care of Bedding Plants," 11 a.m.

"Dividing Perennials," 1 p.m. Summer Plant House

Demonstrations

"Soil Preparation," Demonstration Gardens 12 noon & 2 p.m.

Cooking Classes

"Spring Greens," Kemper Kitchen Classroom, 12:30 & 2:30 p.m.

Tours

Greenhouses, 10 a.m., 12 noon & 2 p.m.

Bulb Gardens, 11 a.m. & 2 p.m.

Kids' Corner

"Potting Marigolds to Take Home," Kemper Center

April 25 & 26

Growing Wild

Weekend Highlights

- **Rosy Lerner**, author of *Possum in the Paw-Paw Tree*, lecture and book signing, Shoenberg Auditorium, Saturday 2 p.m.
- **Missouri Native Plant Society**, Orthwein Display Hall
- **Scarecrow Competition**, Cohen Amphitheater
- **Special promotions**, Garden Gate Shop

Hands-on Workshops

"Butterfly Gardening" Summer Plant House, 11 a.m. & 1 p.m.

Demonstrations

"Growing Native Plants," Demonstration Gardens, 12 noon & 2 p.m.

Cooking Classes

"Wild Edibles," Kemper Kitchen Classroom, 12:30 & 2:30 p.m.

Tours

Kemper Native Gardens, 11 a.m. & 1 p.m.

English Woodland Garden, 12 noon & 2 p.m.

Kids' Corner

"Make a Mini-Scarecrow," Kemper Center

May 2 & 3

May Day Celebration

Weekend Highlights

- **Elizabeth Murray**, author of *The Garden as a Sacred Place*, lecture and book signing, Shoenberg Auditorium, Sunday, 2 p.m.
- **African Violet Society Show & Sale**, Orthwein Display Hall
- **Maypole Celebration** with bagpipers and Morris dancers
- **Special promotions**, Garden Gate Shop

Hands-on Workshops

"Container Gardening," Summer Plant House, 11 a.m. & 1 p.m.

Demonstrations

"Lawn Care," Demonstration Gardens, 12 noon & 2 p.m.

Cooking Classes

"Edible Flowers," Kemper Kitchen Classroom, 12:30 & 2:30 p.m.

Tours

Greenhouses, 10 a.m., 12 noon & 2 p.m.

Japanese Garden, 11 a.m. & 2 p.m. (Two tours at each start time)

Kids' Corner

"Dance around the Maypole," Cohen Amphitheater Tent, 11 a.m. & 2 p.m.

May 9 & 10

Scents & Sensibility

Weekend Highlights

- **Carolyn Roehm**, author of *A Passion for Flowers*, lecture and booksigning, Shoenberg Auditorium, Saturday, 2 p.m.
- **St. Louis Herbalists Show**
- **Mother's Day**: Carol Ann Miller presents "Victorian Fashions"
- **Special promotions**, Garden Gate Shop

Hands-on Workshops

"Fragrant Plants," Summer Plant House, 11 a.m. & 1 p.m.

Demonstrations

"Sensible Vegetables," Demonstration Gardens, 12 noon & 2 p.m.

Cooking Classes

"Cooking with Herbs," Kemper Kitchen Classroom, 12:30 & 2:30 p.m.

Tours

"What's in Bloom?" A special tour to see what's just popping up! 11 a.m. & 2 p.m.

Kids' Corner

"Making Spring Hats"

Saturday: in the outdoor tent at Ridgway Center, sponsored by the Members' Board

Sunday: at Kemper Center

PHOTOS BY CLIFF [illegible]

David Kemper, center, with Stephen Brauer, right, and Peter Raven. Not pictured: Jack Thomas.

Kemper Elected President of Board

DAVID W. KEMPER was elected president of the Board of Trustees at the annual meeting on February 4, 1998, succeeding William H. T. Bush. Mr. Bush remains on the Board as a life member.

Also elected as officers were Stephen F. Brauer, first vice-president, and Jack E. Thomas, Jr., second vice-president. Three trustees, Mrs. Sam Fox, June M. Kummer, and Carolyn W. Losos, were reelected to four-year terms. Mrs. Robert P. Tschudy was elected to the Board for a three-year term.

Mrs. Stephen F. Bowen, Jr., was honored by the Board of Trustees for her recently completed term as president of the Members' Board (see page 5).

David Kemper

David W. Kemper has been a member of the Garden's Board since 1987. In 1991 he was named chairman, president, and chief executive officer of Commerce Bancshares Inc., having held several positions in the company since joining it in 1978. Mr. Kemper is deeply involved in the St. Louis community: he serves on the boards of several companies, is a trustee of Washington University, chairman of the Library National Council at Washington University, and a member of Civic Progress. He has degrees from Harvard University, Oxford University, and Stanford Graduate School of Business, and was recently elected into the American Academy of Arts and Sciences.

William H. T. Bush Receives Henry Shaw Medal

William Bush was presented with the Henry Shaw Medal during the meeting in honor of his outstanding service to the Garden. Mr. Bush joined the Board in 1982 and was elected president in February 1996. During his presidency, Mr. Bush initiated the Strategic Long-Range Planning Committee, founded the Peter H. Raven Society for donors of major unrestricted annual gifts, and oversaw the completion of the Partnership Campaign. Mr. Bush is chairman of Bush-O'Donnell & Company, an investment management and financial advisory firm he founded in 1986.

In presenting the medal to Bush, David Kemper said, "Today we pay tribute to you for your enormous personal commitment to the Garden. Your great depth of service is nothing short of outstanding and we honor you for steering us toward the goals that continue to distinguish the Garden among the best in the world."

Service Awards

35 Years — Harry E. Wuertenbaecher, Jr.

Hal Wuertenbaecher was appointed to the Board of Trustees in October, 1963 and served as president 1967-70. Serving on the Members' Board before he became a trustee, Mr. Wuertenbaecher played an active role in the expansion of the Garden membership, which has grown from 2,000 to over 33,000 today. Over the past decades he has given tirelessly of his time and energy to help the Garden achieve extraordinary goals.

15 Years — O. Sage Wightman III

Sage Wightman became a Garden trustee in 1983 and served as president from 1991 to 1993. During his term as president, the William T. Kemper Center for Home Gardening opened and Garden attendance reached an all-time high. Mr. Wightman also chaired the Henry Shaw Annual Giving Campaign and served on the Steering Committee for the Partnership Campaign.

David Kemper presented the Henry Shaw Medal to William H. T. Bush (right). Mr. Bush also received a framed print from *Banks Florilegium*, a group of copperplate engravings of plants collected on Captain Cook's first voyage, 1768-1771.

Sage Wightman, left, and Hal Wuertenbaecher were honored for their many years of service on the Board.

Editor's Note: Past presidents become honorary lifetime members of the Members' Board, and the Garden is fortunate to continue to benefit from their experience, enthusiasm, and commitment. Watch for profiles of the other past presidents in future issues.

Volunteer Profile

Mrs. Stephen F. Bowen, Jr.

Ann Bowen was honored as the outgoing president of the Members' Board. She received a limited edition ceramic plate designed for the Garden by Hellmuth, Dunn and Company.

ANN BOWEN has become a familiar face at the Garden since she joined the Members' Board in 1986. In the past twelve years she has spent thousands of hours working with the Board, including various offices and a recently concluded two-year term as president, 1996-98.

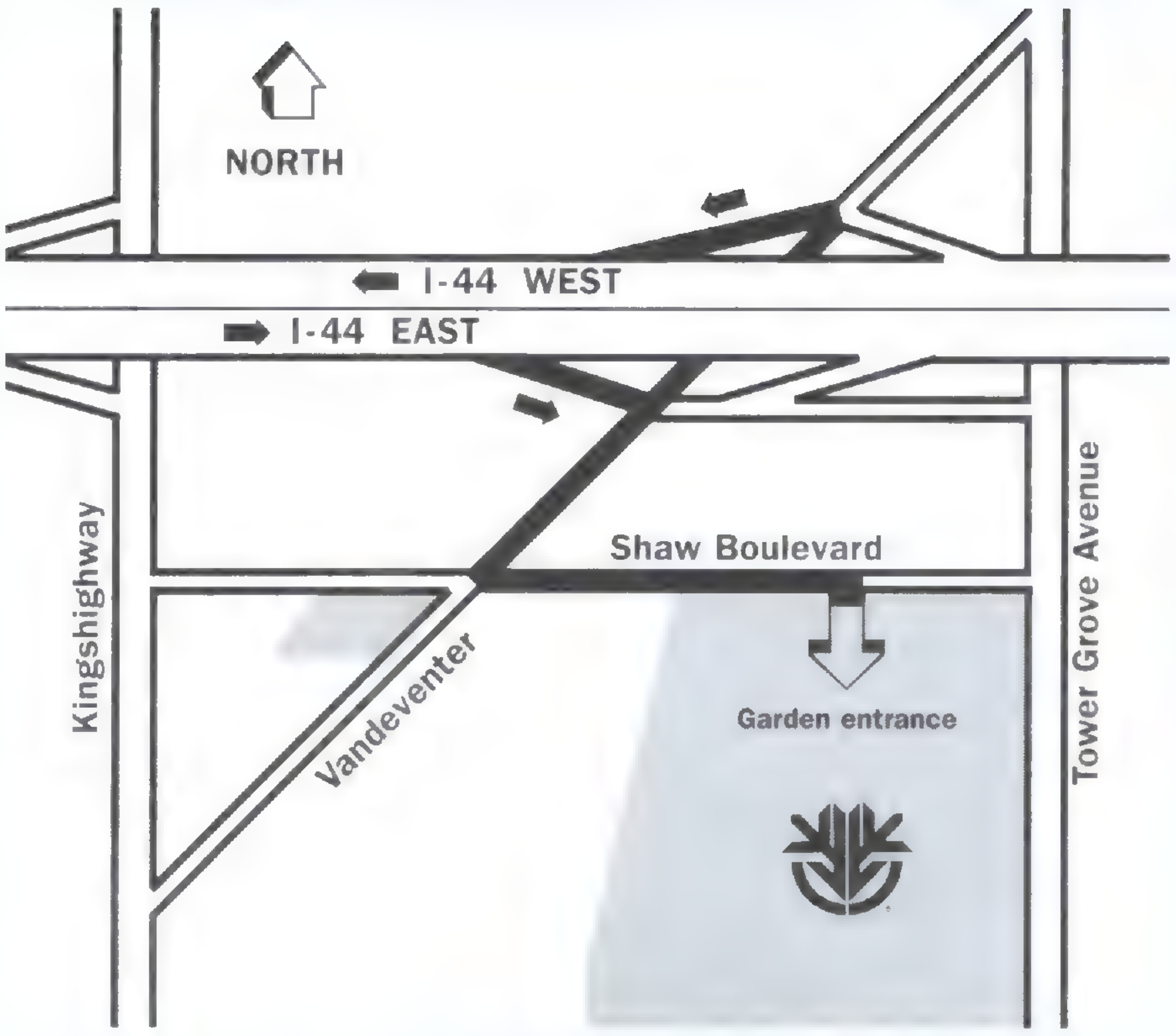
The presidency of the Members' Board is an enormous amount of work. The president attends every committee meeting, chairs the monthly Board meetings, attends Board of Trustees meetings, and helps to supervise all Members' Board activities. With her characteristic graciousness, Mrs. Bowen downplays her contributions. "Having so many talented and hard-working people made my job easy," she says.

986 was the year of the first St. Louis Garden Tour, and Ann was one of the organizers. Garden Tours have become some of the most popular events organized by the Board, and Ann served as chair for subsequent tours in 1990 and 1993. Over the years she has also helped to run Rose Evening, Mother's Day luncheons, and benefit galas. She also has served on the Membership Services Desk.

Ann has been instrumental in establishing a program to attract new Garden members from ages 25 to 40. "This is crucial to the future strength of the Membership Program," she said. Under her leadership, the Board has initiated a series of parties and activities especially designed for young adults and families. With the "Tropics After Hours" party last November, they are off to a strong start.

Mrs. Bowen is a native of St. Louis. Before volunteering at the Garden, she was active with St. Mary's Hospital Auxiliary and the Women's Auxiliary of the Missouri Opthamological Society, both of which she served as president. She was also active in Fleur de Lis for many years. When the youngest of her four children entered school, Ann began her career as a volunteer by running the bookstore at Villa Duchesne. She and her husband, Stephen, have seven grandchildren and enjoy travelling extensively. She loves gardening, especially with her roses and herb garden.

Patty Arnold, director of development, said, "We are very grateful for all Ann has done to help the Garden, and we look forward to working with her for a long time to come."



New Ramps Underway at I-44 & Vandeventer

Completion Scheduled for September

In January the Missouri Highway and Transportation Commission (MHTC) announced that contracts have been awarded for construction of new entrance and exit ramps for Interstate 44 at Vandeventer. The new ramps will "complete the diamond" at the interchange, greatly simplifying automobile access for visitors coming to the Garden from the west.

"The new ramps will be a significant improvement, both for the Garden and the surrounding community," said Paul Brockmann, director of general services at the Garden. "Until now, visitors have had to take a circuitous route to reach the Garden, since southbound traffic on Kingshighway cannot turn left into Shaw Boulevard. When the new ramps are complete, cars coming from the west will be able to exit directly onto Vandeventer and turn left into Shaw. The ramps will also make it much easier for visitors to get on westbound I-44 as they leave the Garden."

The new ramps also will improve access to the neighborhood, relieve traffic congestion on McRee, and reduce the number of cars turning north into Kingshighway at Shaw. The interchange will be built on existing Interstate right-of-way, so no new property had to be aquired.

The Garden has worked since 1993 with officials from the City of St. Louis, Missouri Department of Transportation (MoDOT), the Federal Highway Administration, the East West Gateway Coordinating Council, and Union Pacific Railroad to develop plans and secure approvals for the ramps. Planning is currently underway with city officials to provide a left turn arrow for southbound traffic at Vandeventer and Shaw.

Fred Weber, Inc., was awarded the $3.7 million contract to build the ramps. Construction began in February and is scheduled to be completed late next September. MoDOT required that all work done where the ramps enter Vandeventer be done at night to reduce disruption of traffic on Vandeventer. There will be minimal interruption to traffic on I-44 during construction.

Tower Grove Park

Restoring Henry Shaw's Legacy

TOWER GROVE PARK and its neighbor, the Missouri Botanical Garden, have been beloved by St. Louisans ever since Henry Shaw gave them to the city in the nineteenth century. The Park and the Garden were established on adjoining tracts of land that formed part of Shaw's extensive estate at Tower Grove, which was a rural area at that time. Today the Garden and the Park are a treasure of beautiful, historic green space in the heart of our South St. Louis neighborhood.

Each institution is a National Historic Landmark. Tower Grove Park is one of only four municipal parks in the country to have earned this distinction. A masterpiece of "gardenesque" landscape design, it is widely considered the finest Victorian park still in existence in the United States.

Clearly Shaw envisioned the Park and the Garden as complementary to one another, and he lavished his energy and resources on both. The Garden opened to the public in 1859. Shaw donated the Park to the City of St. Louis in 1868, and it opened to the public on September 28, 1872. Last summer the Park celebrated the 125th anniversary of that opening.

Because Tower Grove Park was located mostly outside city limits in 1868, a special act of the Missouri Legislature was required to authorize the city to accept Shaw's gift. In accordance with Shaw's wishes, the law specified that the Park would be owned by the city, but administered by an independent Board of Commissioners. The law also required that one of the commissioners must be Henry Shaw or his successor as director of the Garden, and today Peter H. Raven serves as a commissioner of the Park. The first superintendent of the Park was James Gurney, Sr., who was also the first head gardener at the Garden.

Ten years ago the Park commissioners began a vigorous campaign to restore and refurbish the splendid features and plantings of the Park. Their efforts, spearheaded by Park director John Karel, have revitalized Tower Grove Park as a superb ornament for the neighborhood and the community. Among the many improvements over the past decade, the Sons of Rest Pavilion was honored in 1997 by the Landmarks Association of St. Louis as one of the city's eleven most enhanced historic structures. The twin Cypress Pavilions also were completely restored in 1997. Currently the pool pavilion is under restoration and three others are receiving new roofs. Since 1989, an important partner in this program has been a new volunteer group, The Friends of Tower Grove Park.

The current major project underway at the Park is the $1,250,000 interior restoration of the 1878 South Palm House, a handsome brick conservatory similar in appearance to the Linnean House at the Garden. The project is supported by a capital fund drive, which has passed the halfway mark. Peter Raven said, "The revitalization of Tower Grove Park is of great benefit to everyone who is interested in the future of the Missouri Botanical Garden and the City of St. Louis. Together they form a splendid ornament that enhances our entire community."

To learn how you can participate in the restoration of Tower Grove Park, please write to: Tower Grove Park, 4255 Arsenal Street, St. Louis, Missouri 63116, or call (314) 771-2679.

The newly restored Palm House in Tower Grove Park will open to the public in early May.

CBI Moves Into New Offices on Shaw Boulevard

THE GARDEN'S CENTER FOR BIOINFORMATICS (CBI) moved into newly renovated quarters in the former RF building on Shaw Boulevard in January. The building, on the northeast corner at Kingshighway and Shaw, includes offices and extensive storage space that were urgently needed by the Garden. The new space was especially welcome to the CBI staff, who had been operating in cramped quarters in the basement of the Shoenberg Administration Building.

Over the past two years the Garden has acquired most of the developed and vacant properties along Shaw between Vandeventer and Kingshighway. The dilapidated and abandoned property adjacent to The Monsanto Center has been cleaned up and cleared, and some of the vacant lots eventually will be converted into landscaped off-street parking. "Acquiring these properties is part of our commitment to the neighborhood and the City of St. Louis," said Peter H. Raven. "We have yet to determine the long-term use of these properties, other than our continuing commitment to enhance the area and improve services for our visitors."

CLIFF WILLIS

CBI staff members are shown outside the entrance to their new offices on Shaw Boulevard. From left: Christine McMahon, John Schnase, Kay Tomlinson, and Mark Spasser.

Gateway Greening — Rooting Communities Together

The Great Perennial Divide 1998

Last spring the Great Perennial Divide distributed more than 12,000 plants to 60 community gardens.

Donations Accepted APRIL 18-23, 1998

THE GOAL for the 1998 Great Perennial Divide is to collect 25,000 plants, which will be be distributed to over 80 neighborhood gardening projects on April 25.

No donation is considered too small. Gwenne Hayes-Stewart, executive director of Gateway Greening, said, "We can find a home for extra seedlings, annuals, even a small pot of herbs."

Volunteers at each collection site will greet you and tend to your plants until they are distributed on April 25th.

Prizes for the Biggest Donors!

New Collection Sites

Collection sites are located in Kirkwood, Chesterfield, Clayton, Creve Coeur, Sunset Hills, Ferguson, Oakville, Bridgeton, St. Louis City, and Frontenac/Des Peres. This year there will be an additional collection site in Kirkwood, plus an additional site in the St. Charles area.

To locate a collection site near you, please call (314) 577-0880.

NEW! Digging Crews

In response to many requests, this year volunteer crews will be available to help donors who have more plants than they can manage. Members of garden clubs will be encouraged to help each other or arrange for a crew to join them for a large group effort. Donors with a garden to retire or who are moving away and leaving a garden behind can call 577-0880.

NEW! Plant Sale

This year a plant sale will be open to donors and volunteers, featuring specimen plants and plants donated in quantities too small to distribute. Information about the sale will be given to donors when they drop off their divisions at collection sites.

What To Donate:

- Perennials for sun or shade
- Missouri natives
- Seedlings of annual vegetables and flowers
- Gardening equipment
- Bulbs
- Shrubs
- Ornamental grasses
- Herbs
- Small trees
- Ground covers
- Rock garden plants

How to Donate to the Great Perennial Divide:

- Label plants.
- Pot smaller divisions.
- Large clumps need to be wrapped in waterable containers.
- Donate healthy plants.
- Please, no clay pots, invasive plants, untrimmed piles of ground cover, diseased plants or plants in poor condition.
- Drop off plants at a collection site near you.

Great Perennial Divide Hotline: 314-577-0880

For information on future events or to become a volunteer, call or write: Gateway Greening, P.O. Box 299, St. Louis, MO 63166, (314) 577-9484.

What Is the Great Perennial Divide?

LED BY GATEWAY GREENING, INC., a service organization headquartered at the Missouri Botanical Garden, volunteers collect and distribute free plants to community gardens. Last April, plants donated by generous gardeners found their way to bloom at city school yards, churches, community centers, and housing projects.

Neighborhood groups fighting urban decline by gardening on abandoned city land produce "wish lists" requesting the most prolific perennials. These are the same plants that overperform in backyard gardens and require dividing regularly to stay attractive. Hardy, rapid-spreading perennials, Missouri natives, and ground covers are perfect for filling beds in the inhospitable soils of urban vacant lots and street corners.

Last year, sun-loving perennials were the most requested plants. Shasta daisies were the number one choice, followed by black-eyed Susans and purple coneflowers. Yarrow, lilies of the valley, sedums, and daylilies were also very popular.

Leadership for the Great Perennial Divide comes from garden clubs, plant societies, master gardeners, and community gardens. June M. Kummer, a member of the East Central District of Federated Garden Clubs of Missouri and a Missouri Botanical Garden trustee, said, "I've been a gardener all my life and we love to share. The people of Gateway Greening work so hard at what they do, they are just wonderful."

Arlie Tempel, the top donor in 1997, said, "I support the Divide because I love to meet new people to share plants with."

Volunteer June Kummer, left, with community garden leader Mattie Johnson at the 1997 Great Perennial Divide.

Plants of the Bible

Interior of the Shoenberg Temperate House

PHOTO BY JACK JENNINGS

THE PAGES of the Bible are filled with eloquent references to olives, dates, figs, pomegranates, and many other plants. This spring, those passages come to life in a wonderful exhibit of Biblical plants in the lower level of the Shoenberg Temperate House.

The Biblical Garden has grown and matured since its installation eight years ago, and new herbs and agricultural plants have been added. New signs quote passages from both the Old and New Testament, and each plant is identified as it is listed in the Bible, together with a Biblical reference.

One hundred and ten plants are mentioned in the Bible, though some of these references encompass more than one plant, as in "bitter herbs," Exodus 12:8. Some of the plants are easily identified; others remain shrouded in mystery. Over the centuries, different translators of the Bible have added to the confusion. When Greek translators came across unfamiliar plant names, they often assigned to them names of plants they knew, not necessarily plants that grew in Biblical lands. Researchers going back to the original Hebrew are faced with deciphering names that have long been forgotten or obscured.

Among the featured plants are a date palm and an olive tree. These plants are not native to Biblical lands, but they have been cultivated there since 4000 B.C.

The date palm, *Phoenix dactylifera*, had both spiritual and practical uses in Biblical times. It served as a symbol of justice and righteousness in Judges 4:5. Its fruit was widely eaten, a tasty juice was made from its trunk, its leaves were woven into mats and baskets, and its wood was used for fences and roofs.

The olive tree, *Olea europaea*, provided abundant fruit. Its oil was used in holy ointments of kings and priests, for annointing the sick, for lighting, and as a solvent for various spices, incenses, and aromatics. Tiny white flowers in spring are followed by green olives, which gradually ripen to black by fall.

The Mediterranean redbud, *Cercis siliquastrum*, is the showpiece of the Temperate House in March, when it produces pink flowers that are larger than those of our native redbud, *Cercis canadensis*. This tree is reputed by some to be the tree from which Judas hanged himself; other sources point to the fig tree instead.

Figs, *Ficus carica*, ripen all summer high above the Moorish Garden in the center of the Temperate House. Figs were particularly important during Biblical times because their sugar-laden fruit could be dried and stored.

The pomegranate tree, *Punica granatum*, produces beautiful orange flowers in May, and its showy orange fruits grace the Biblical Garden each fall.

Caper vines, *Capparis spinosa*, flower during the summer and early fall. The caper we eat is the flower bud, which opens into a lovely flower if left undisturbed.

Books concerning Biblical plants and Biblical gardening can be found in the Garden Gate Shop. The major reference used in preparing this exhibit and the signs is *Plants of the Bible* by Michael Zohary, 1982, Cambridge University Press. This book is now out of print, so check your local library or used book stores.

— Susan Farrington, MBG horticulturist

Grow Your Own Biblical Garden

While not all Biblical plants will thrive outdoors in the St. Louis area, here are some plants you can grow to create a Biblical garden of your own.

Flowers

Castor bean, *Ricinus communis*, **Jonah 4:6-7**
Dandelion, *Taraxacum officinale*, **Exodus 12:8**
Saffron, *Crocus sativus*, **Solomon 4:14**
Iris, *Iris pseudocorus*, **Hosea 14:5**

Herbs

Bay, *Laurus nobilis*, **Isaiah 44:14**
Coriander, *Coriandrum sativum*, **Exodus 16:31**
Cumin, *Cuminum cyminum*, **Matthew 23:23**
Dill, *Anthemum graveolens*, **Matthew 23:23**
Mint, *Mentha longifolium*, **Matthew 23:23**
Rue, *Ruta graveolens*, **Luke 11:42**

Vegetables

Garlic, *Allium sativum*, **Numbers 11:5**
Leek, *Allium ampeloprasum*, **Numbers 11:5**
Lettuce, *Lactuca sativa*, **Exodus 12:8**
Onion, *Allium cepa*, **Numbers 11:5**

Fruits

Fig, *Ficus carica* 'Brown Turkey', **Genesis 3:7**
Grape, *Vitis vinifera*, **John 15:1-2**
Muskmelon, *Cucumis melo*, **Numbers 11:5**
Pomegranate, *Punica granatum*, **Exodus 28:33-34**
Watermelon, *Citrullus lanatus*, **Numbers 11:5**

Grains and other plants

Barley, *Hordeum vulgare*, **Ruth 1:22**
Millet, *Panicum miliaceum*, **Ezekiel 4:9**
Sorghum, *Sorghum bicolor*, **Ezekiel 4:9**
Wheat, *Triticum aestivum*, **Deuteronomy 8:8**
Bulrush, *Cyperus papyrus*, **Exodus 2:3-4**
Cotton, *Gossypium herbaceum*, **Esther 1:5-6**

CLIFF WILLIS

***Right: Horticulturist Susan Farrington with the enlarged carnivorous plant display. Closeup: Venus flytrap,* Dionaea muscipula.**

New Carnivorous Plant Display

A Walk on the Wild Side

EVER WONDER how a plant can eat an insect? And why it would even want to? This spring come and see the newly renovated display of carnivorous plants in the Shoenberg Temperate House, where you can see and touch the exotically-named Venus flytraps, pitcher plants, sundews, butterworts and bladderworts. The plants are all waking up from their winter rest, growing lush new foliage, sending up beautiful flowers, and capturing unwitting prey.

Carnivorous plants have evolved in areas of nutrient-poor soils such as bogs, where the soil is very wet and acidic. Not many plants can survive these conditions, but carnivorous plants have learned to get the nutrients they need from the bodies of insects that they trap and digest.

Some plants, such as the Venus flytrap, *Dionaea muscipula*, actively capture prey, rapidly closing their trap-like leaves when the trigger hairs are disturbed by a passing insect. You can pretend to be an insect by gently brushing your fingertip back and forth inside the trap, causing it to close. It doesn't hurt — honest!

But don't close more than one trap in the display: once triggered, the trap will remain shut for 24 hours. If it had actually caught a meal, it would stay shut for up to a week, slowly dissolving and digesting its prize.

Some plants trap their prey passively. Pitcher plants, *Sarracenia* species, attract insects with the scent of the nectar that clings to the top of their pitchers. The insect lands on the edge to get the nectar, but often loses its footing and falls inside. Once trapped, it is next to impossible for the hapless insect to escape, as it encounters a very slippery surface and downward facing hairs that make it difficult to crawl upwards. Some pitchers contain water and the prey is drowned; in dry pitchers, the insect just dies from exhaustion and settles to the bottom to be absorbed.

Sound too gruesome for you? Well, you still won't want to miss the display because the plants are not only fascinating, they are beautiful. The pitcher plants have especially showy flowers in April and May, and their showy seedheads last for months.

Our display has recently been enlarged, making it easier for visitors to see and touch the plants up close. We have also increased the number of species represented, the majority of which are native to the southeastern United States.

Carnivorous plants are rapidly disappearing in the wild, due to loss of wetland habitats and the overcollection of plants for sale. To help ensure their survival, make sure that any plants you buy are not wild-collected, and support the preservation of wetlands. You can find nursery propagated plants for sale in the Garden Gate Shop, and also an excellent new book about caring for carnivorous plants: *The Savage Garden: Cultivating Carnivorous Plants*, by Peter D'Amato (Ten Speed Press, Berkeley, CA, 1997). — *Susan Farrington, MBG horticulturist*

Spring Adult Education Course

Carnivorous Plants

Carnivorous plants have the reputation of being exotic and difficult to grow. With a basic understanding of their special requirements, many of them are, in fact, very easily grown. Learn about their native environment and how to adapt them into your home or garden. You'll pot and take home one of these interesting plants to get your collection started.

The class will be taught by Susan Farrington and meets Tuesday, April 21, 7:00 to 9:00 p.m., $25 for members, $30 for non-members. Advance registration is required. See the Spring brochure mailed recently to all members, or call the Kemper Center for Home Gardening at (314) 577-9441 during business hours, Monday through Friday.

The Ants Are Back!

Visit the new ant colony in the Brookings Interpretive Center. The fierce stinging ants, which arrived from Belize in January, are patrolling the bull-horn acacia tree and protecting it from all comers. The tree, in turn, provides the ants with food and shelter. Fortunately for visitors' peace of mind, the entire exhibit is safely behind glass. Visit this spring, and watch for more details in the May/June *Bulletin*.

Home Gardening

THE CUTTING GARDEN

PURCHASING cut flowers from the local shop is one of life's greatest simple pleasures. But it doesn't compare to the joys of growing your own. Thanks to the wide selection of plants now available through mail-order catalogs, you no longer have to spend a fortune to renew your spirits and delight your friends with fresh bouquets. A well-planned cutting garden can yield wonderful variety and also add seasonal interest to your landscape.

Growing Your Own

With your own cutting garden, you can really pick and choose what you want. Plant your favorite varieties, colors, shapes, and types. Select species for their fragrance or beautiful foliage to enhance bouquets and make them even more spectacular.

Choosing how much cutting material to grow is largely a matter how much time and energy you want to invest. If you long for a wide variety of plants, remember that some may need to be staked, and others may require hours to remove spent flowers or control insect or diseases.

To diversify your cutting garden, cruise the seed catalogs that arrived during the winter. For growing seedlings, you will need to set up a lighted propagation area in the basement or a heated porch.

Don't expect the local garden center to have all the plants you want. They might have a good selection of seed, but in spring the selection of plants for cutting gardens is usually limited to standard varieties.

Be aware that the trend today is toward short, compact plant forms that supply lots of color in a small space. Cutting gardens typically feature long stemmed flowers two to three feet tall. Before you buy, ask questions and read plant descriptions carefully!

Design

A cutting garden can be any shape, but it absolutely requires full sun — at least five to six hours a day. If your garden is large enough, you may decide to devote one area exclusively to a cutting garden. In that case, planting in rows is the most convenient design. But if you want to incorporate cutting plants into your main garden design, it isn't hard to do.

In a mixed garden, carefully consider which plants will be harvested and at what time of year. The objective is to design a garden that never looks stripped. Pay particular attention to mixing early, middle, and late flowering selections. The layout might include some evergreens, such as ferns, azaleas, or boxwoods, to fill the bald spots at the end of harvest and supply year-round interest.

A simple solution for gardeners with very limited space is to plant in containers. This has an added advantage, because you can move the pots around to add colorful accents when and where they are needed.

Selection

We usually think of annuals as cutting plants. However, there are some fine perennials that offer repeated annual blooms without replanting, saving money and time. Don't forget bulbs for both spring and summer, as well as some small shrubs and trees.

A spike or frond of green foliage here and there makes a wonderful addition to floral arrangements. Bamboos, grasses, ferns, palms, eucalyptus, euonymous, ivys, hollies, boxwoods, crotons, and artemisias are all good choices. One recent trend has been to use tender tropical plants placed into the garden for a seasonal, tropical look with an accent on foliage.

How to Cut

Harvest flowers in the coolest part of the day, when the foliage is dry. At this point, the sugar and water levels in the plant are at their highest, which means the flowers survive the transition between cutting and arranging and will last longer in the vase.

The time to harvest depends upon the plant and its stage of development. Harvest spikes when half of the flowers are open. Cut daisy-like flowers when the blossom is fully open. With gladiolus, tulips, and bearded irises, harvest when the buds show color.

The length of the cut is also important. Leave at least two to five leafy nodes below the cut to ensure new growth, and make the stems about 15 to 18 inches long. The cut can be either slanted or straight, but make it a sharp, clean cut, taking care not to crush the stem, which will reduce water uptake.

A sharp knife or shears are essential. They must be clean to prevent contamination of the cut end with bacteria. Dip your tools in a one-to-ten bleach and water solution to take care of this.

Submerge cut ends immediately in a container of tepid water. For plants with sticky and milky sap, such as poinsettias, poppies, and mignonettes, the cut ends should be put into boiling water for ten seconds or seared with a flame. This prevents the sap from blocking the water-conducting vessels in the cut end and is known as pre-conditioning.

Conditioning

Some cut flowers naturally last longer than others, and you may want to plan your cutting garden accordingly. After cutting and immersing the flowers in a bucket of tepid water, condition the cut flower to ensure that it is totally filled with water prior to arranging.

Start by making a second cut underwater, about one inch up the stem. This eliminates bubbles in the stem or cut end. If you are working with hollow-stemmed plants, make one or several holes just below the flower to force trapped air out and fill the stem with water.

Next, remove all of the foliage that otherwise would end up in the vase water. This is especially important for fuzzy-leaved plants. Leaves will become filled with water and begin to decay rapidly, increasing the bacteria in the vase water. Submerged foliage from marigolds, zinnias, mums, clematis, lilacs, blanket flowers and dahlias are especially prone to decay.

Cut flowers should then be immersed in tepid water up to their flowers or remaining fuzzy leaves for two to eight hours and kept in a cool place. Kitchen refrigerators are risky, because the air is dry and stored fruits and vegetables may give off ethylene gas, which may reduce the flower's longevity.

A floral preservative can be added to the conditioning water. These products can be purchased or formulated at home. They consist of sugars and either antibacterial/antifungal agents or acidifiers to discourage bacterial growth in the vase water. A simple formula is one part tonic water or non-diet lemon or lime soda to two parts water. Another good mixture is one-quarter teaspoon of bleach plus one tablespoon sugar per one gallon of water.

If you use plain water without floral preservative, the water should be changed every other day. Hard water is discouraged as well as chemically softened water, which contains salts. If your water supply is one of these, try using rainwater or distilled water for cut flowers.

To help your arrangements last, keep the water level up, continuing to use floral perservative. Place the arrangement out of direct light, away from heat and drafts, and move it to a cool, humid spot during the night.

Visit the Kemper Center's cutting garden this summer in the Experimental Garden for ideas on plant selection and design.

— Steven D. Cline, Ph.D.
Manager, Kemper Center for Home Gardening

WHAT'S COMING UP
This Spring at the Kemper Center

Look for these new displays during March and April, and be sure to watch the *Bulletin* for news of more exciting displays at the Kemper Center this summer!

In the Experimental Garden

The Mound Garden Now in the second year of a three-year experiment, this exhibit demonstrates how mound planting enhances vegetable production. Composting activity down in the mound supports early-season planting.

The Raised Bed Garden See raised beds constructed of four different materials: pine, cedar, recycled plastic, and concrete bricks. Learn about the advantages of raised beds for vegetable gardening.

On the Grounds

Container Gardening You will see a wide variety of attractive containers throughout the Kemper Center this season, filled with striking and unusual assortments of plants selected especially for growing in containers. The plants in each container are labeled, and lists of plants by location are provided at the reception desk. Take home some new ideas for decorating with potted plants outdoors.

CACTUS SOCIETY SUPPORTS GARDEN — In December the Henry Shaw Cactus Society presented its annual donation to the Garden, to support general operating expenses as well as the purchase of new potting benches for the C3 greenhouse. Members of the Society maintain the Garden's collection of cacti and succulents, which are kept in the greenhouse until funds can be raised to build a new Desert House conservatory. Shown from left: Peter H. Raven; Pat Thomann, past president of the Society; Mike Hellman, new president of the Henry Shaw Cactus Society; and Dr. Shannon Smith, director of horticulture.

Manage Provides Effective Nutsedge Control

Thanks to a generous donation from Monsanto, the Garden uses Manage® herbicide to control nutsedge in lawn areas. Nutsedge, also known as watergrass or nutgrass, is a grassy weed commonly found in wet areas of lawns and ornamental beds in St. Louis. It is difficult to control because it reproduces by underground stems and nutlets as well as from seeds that remain viable in the soil for years.

The Garden has found Manage to be the most effective control for nutsedge on its 30 acres of turf. The Horticulture Division uses the herbicide for spot spraying in problem areas, rather than broadcasting it over the lawns. Manage is available from select garden suppliers.

Calendar

March 3 Tuesday

Trip Preview: "Tambopata"

7:30 p.m., Ridgway Center. Get an advance peek at the Garden's natural history adventure to the Amazon, coming up next August. See page 17 for details.

March 12 Thursday

Trip Preview: "Madagascar"

7:30 p.m., Ridgway Center. Get an advance peek at the Garden's natural history adventure to the world's fourth largest island, coming up next October. See page 17.

Continuing through March 15

Orchid Show

9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. "Egyptian Oasis" exhibits hundreds of colorful orchids in a setting of ancient tombs and statues. Also see orchid paintings by Marion Sheehan, noted botanical illustrator, in Grigg Hall. Flower Show admission: $2 adults, $1 seniors age 65 and over, free to Garden members and children age 12 and under.

March 15 Sunday

Doug Gabriel Concert

2 p.m., Shoenberg Auditorium. Co-sponsored by MBG and the *St. Louis Times*. Concert tickets are $10 per person, available through the *St. Louis Times* at 997-1212. Garden admission, trams, and orchid show admission for visitors with concert tickets is two for one. For information call 576-6443.

March 20 Friday

Reception for Mary Banning Exhibit

7 p.m., Ridgway Center. The Missouri Mycological Society hosts a preview of the exhibit of 19th century paintings by artist and naturalist Mary Banning. Actors will present a dramatic reading of letters exchanged by Banning and her mentor, Charles Peck. $5.00 per person, no reservations.

March 21 Saturday

Mary Banning Mushrooms Exhibit: "Each a Glory Bright"

9 a.m. to 5 p.m. daily through May 17, Monsanto Hall. A Victorian woman's lifetime achievement, 51 colorful paintings of mushrooms portray the human spirit's essential connection with nature. Free with Garden admission.

April 4 & 5 Saturday & Sunday

Lily Bulb Sale

9 a.m. to 5 p.m. daily, or until sold out, Orthwein Floral Display Hall. The Mid-America Regional Lily Society (MARLS) presents its first spring bulb sale, featuring Oriental lilies and varieties for potting. Free with Garden admission.

April 14 Tuesday

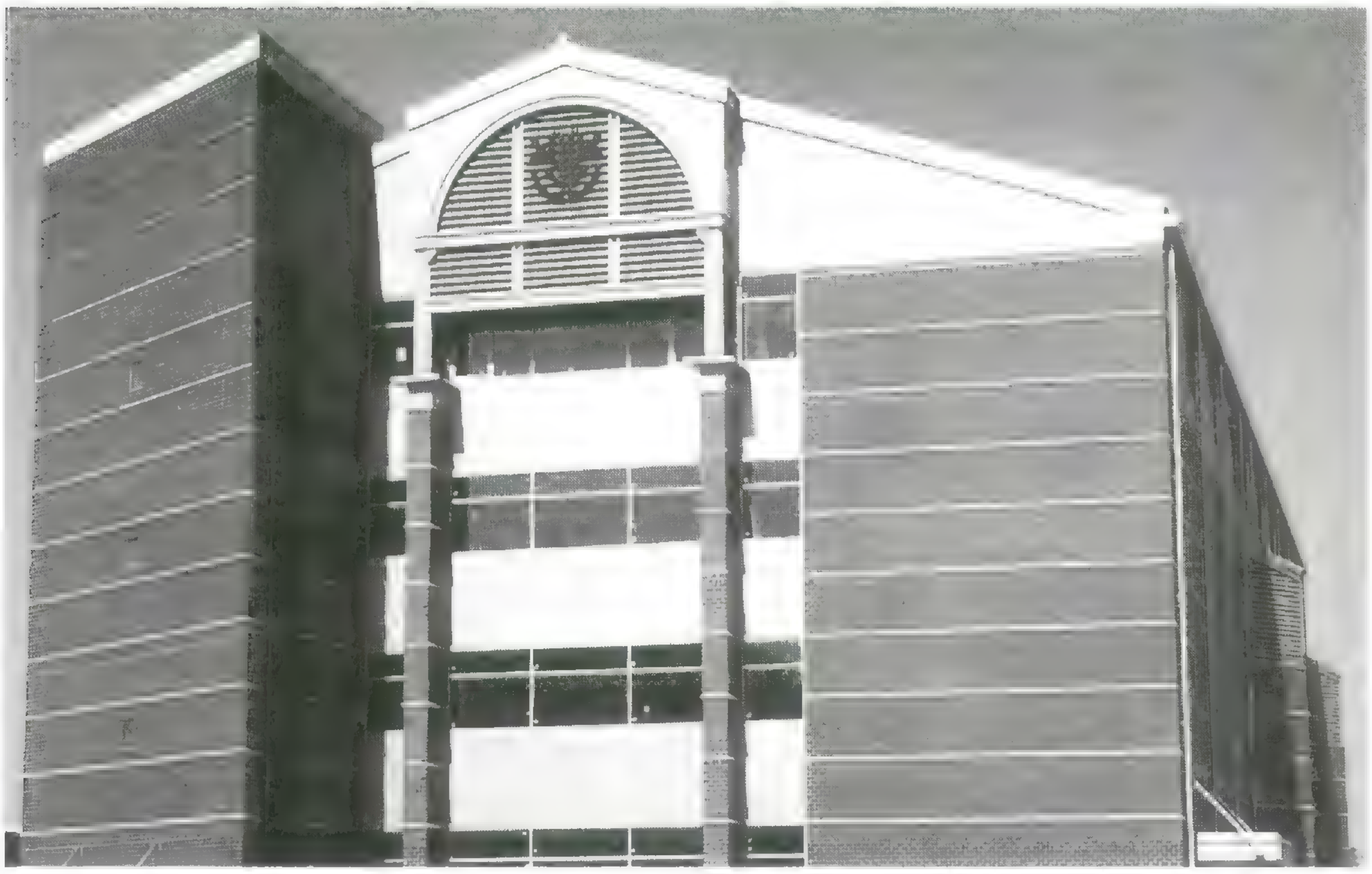
Jane and Whitney Harris Lecture: "Frogs and Snakes: The Texture of Biodiversity"

7:30 p.m., The Living World, Saint Louis Zoo. Sponsored by the International Center for Tropical Ecology at the University of Missouri-St. Louis. Dr. Harry Greene, noted herpetologist at University of California, Berkeley, discusses anti-predator adaptations, community structure in vertebrates, and conservation of predators in rain forests and deserts. Greene recently published the highly acclaimed *Snakes: The Evolution of Mystery in Nature*. Refreshments will be served; admission is free.

April 16–19
Thursday — Sunday

Annual Spring Plant Sale

9 a.m. to 6:30 p.m. Thursday & Friday; 9 a.m. to 5 p.m. Saturday & Sunday, Garden Gate Shop. See page 19 for details.



March 12 & 13 Thursday & Friday

Members' Previews: The Monsanto Center

5:30 to 7:30 p.m., 4500 Shaw Boulevard. Take a guided tour of the Garden's new research facility, including the new herbarium and library. Entertainment, cash bar. In addition to parking at The Monsanto Center, a shuttle from the Ridgway Center will be available for your convenience. Free, for members only.

April 18 & 19
Saturday & Sunday

Garden Expo: "Digging In!"

10 a.m. to 5 p.m. daily, Kemper Center for Home Gardening and Ridgway Center. See page 3 for details.

April 18 & 19
Saturday & Sunday

Mini Rose Sale

9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. The Rose Society of Greater St. Louis presents its annual sale.

April 25 & 26
Saturday & Sunday

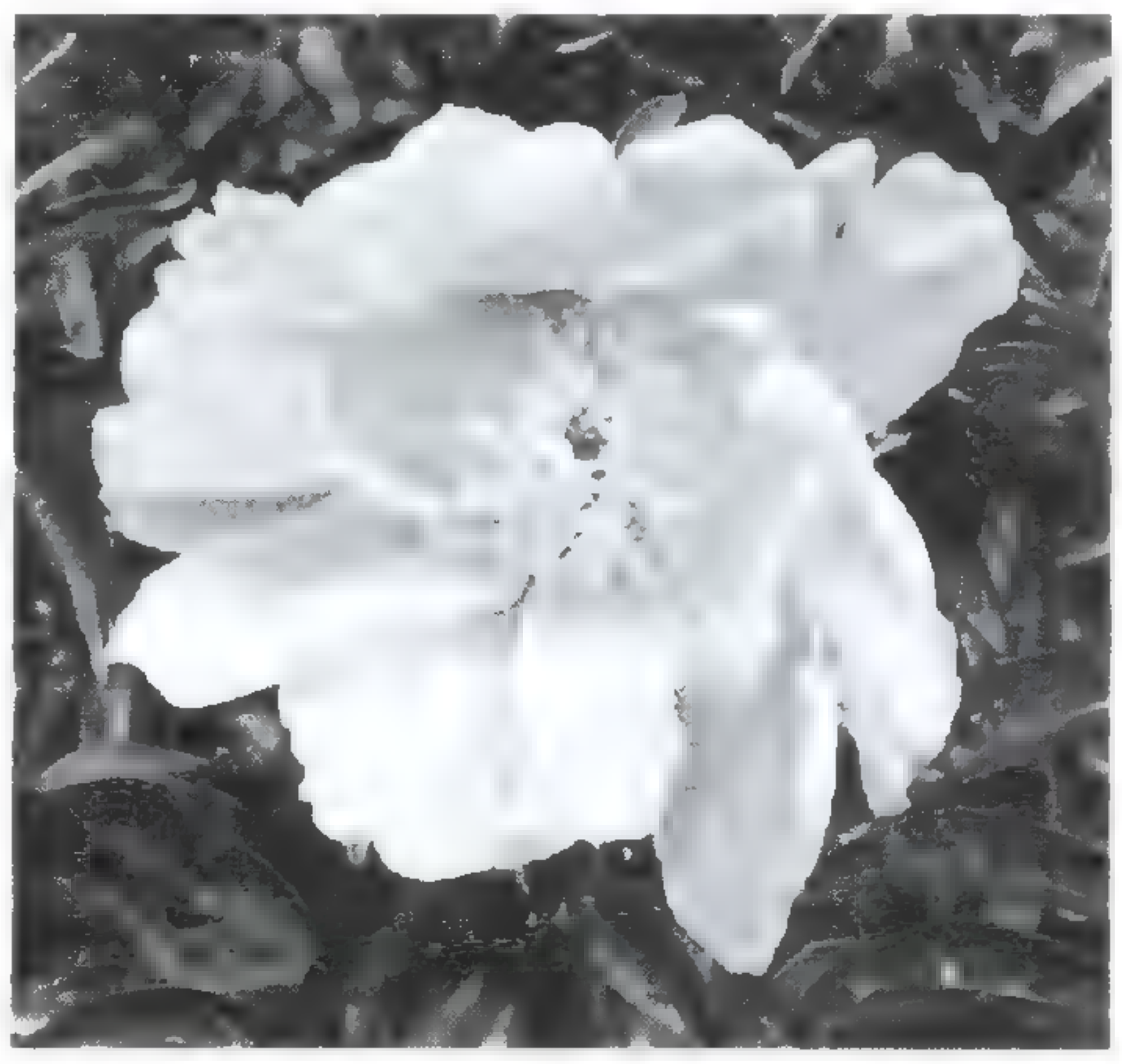
Garden Expo: "Growing Wild"

10 a.m. to 5 p.m. daily, Kemper Center for Home Gardening and Ridgway Center. See page 3 for details.

May 2 Saturday

African Violet Society Show and Sale

9 a.m. to 5 p.m., Orthwein Floral Display Hall.



April 11 Saturday

EarthFriends Day

10 a.m. to 5 p.m., Ridgway Center. Celebrate biodiversity with fun for the whole family! Children pick up a special passport and have it stamped at each "Biodiversity Station" to receive a special free gift. Learn about birds by seeing the colors and sizes of their eggs, and color some eggs. Enjoy visitors from the St. Louis Children's Aquarium, Mid-America Aquacenter, World Bird Sanctuary, Wild Canid Survival and Research Center/Wolf Sanctuary, and the Saint Louis Zoo. Discover mushrooms with Ozark Forest Mushrooms and learn about the importance of molds, mildews, and other "yucky" life forms with the "Fungus Among Us" display. Pot a carnivorous plant to take home, enjoy an Eco-Cart demonstration in the Brookings Interpretive Center, and see nature films throughout the day in Shoenberg Auditorium. All events are free with Garden admission.

COMING UP JUNE 5-7, 1998

Native Plant Conference

Gardeners, horticulturists, environmental educators, and landscape architects are invited to the third Native Plant Conference, to be held June 5-7 at Powder Valley Nature Center in Kirkwood, Missouri. This year the conference is co-sponsored by Shaw Arboretum and the Missouri Department of Conservation.

Learn how to use native plants in the landscape through lectures and hands-on outdoor workshops. Speakers will include Sara Stein, author of *Noah's Garden*; Bret Rappaport, columnist for *The Wild Ones Journal* and field editor for *Wildflower* magazine; Steven Foster, a leading U. S. authority on medicinal plants; and Guy Sternberg, co-author (with Jim Wilson of the "Victory Garden") of *Landscaping with Native Trees*.

Participation is limited to the first 250 registrants, and advance registration is required. For information and registration, call or write: Shaw Arboretum, P.O. Box 38, Gray Summit, Missouri 63039, (314) 451-3512.

Members' Days

On Members' Days, Garden members receive free tram rides, additional discounts in the Garden Gate Shop, and 10% off in the Gardenview Restaurant.

March 12 Thursday

"Art in Bloom"

11 a.m., Shoenberg Auditorium. Master Gardener Jan MacDougal, author of *Charleston in Bloom* and a guide at Middleton Place Plantation, shares her beautiful photographs of plants and gardens from around the world, including her home in Charleston, South Carolina. Jan's floral arrangements have been featured on the covers of *Gourmet*, W, and *Southern Accents*. Her son John is conservatory manager at the Missouri Botanical Garden. Seating is on a first-come, first-served basis. Free, for members only.

April 18 Saturday

Bird Walk at the Arboretum

9 a.m. to noon. Enjoy a spring morning with the birds at Shaw Arboretum, located in Gray Summit just 30 minutes west of St. Louis on I-44. Receive a copy of the Arboretum's bird list, visit the beautifully restored Bascom Manor House, and talk with staff experts in the Whitmire Wildflower Garden. If you haven't seen the Arboretum, or if you haven't visited recently, this is a wonderful chance to see all the wonderful new sights at the Garden's nature preserve. Free, for members only.

April 29 Wednesday

Members' Greenhouse Plant Sale

9 a.m. to 4 p.m., Garden members have an exclusive opportunity to purchase plants from a select inventory featuring many display specimens from this year's Orchid Show. The selection of great houseplants includes large palms, exotic tropical foliage plants in large and medium sizes, and orchids from the Garden's collection. For outdoors the sale will offer perennials from the Garden, a limited number of hanging baskets, and flats of unusual annuals and bedding plants that will be featured on Garden grounds this summer.

Horticulture staff and Master Gardeners will be on hand to answer your questions. Easy access for plant pick-up is available. Take advantage of this rare opportunity to get a "behind the scenes" view of the Garden greenhouses and take home some unusual plants. All proceeds from the sale help support the Garden's Horticulture Division.

Members

TIM PARKER

The annual meeting of the Board was held in The Monsanto Center. New officers (from left): Anne Hizar, Glee Stanley, Susie Schulte, Liz Teasdale, and Jean Crowder. Not pictured: Kathleen Dudley.

Peter Raven joined the new Board members (from left): Andrea Tramelli, Martha Rowe, Paul McClinton, and Terry Dunagan, with president Liz Teasdale at right. Not pictured: Katy Mullins.

Board Elects Officers and Members

AT the annual meeting on January 6, the Members' Board elected officers for the next two-year term. Mrs. Kenneth Teasdale was elected president, succeeding Mrs. Stephen F. Bowen (see page 5.) Also elected were Mrs. Robert Schulte, first vice-president; Mrs. Ned Stanley, second vice-president; Mrs. William B. Crowder, recording secretary; Mrs. Thomas Hizar, corresponding secretary; and Mrs. Michael Dudley, treasurer.

Five new members joined the Board at the January meeting. They are: Mrs. W.C. Dunagan, Mr. Paul McClinton, Ms. Katy Mullins, Mrs. William Rowe, Jr., and Mrs. John Tramelli.

On behalf of the entire Board, Mrs. Teasdale thanked Mrs. Bowen for her outstanding service as president. The Members' Board organizes activities and fundraising events throughout the year and serves as Garden ambassador to the community.

Save the Dates!

Friday, May 8 – Mother's Day Luncheon

"A Mad Hatter's Party"

Wear your prettiest spring hat and enjoy a delightful afternoon with your mother and friends at the Garden's annual Mother's Day Luncheon. Held under the outdoor tent, featuring beautiful fashions by Dillards. $40 members, $50 non-members. Watch the mail for your special invitation, or call (314) 577-9500 by May 1 for reservations.

Saturday, May 9 – A Special GardenExpo "Kids' Corner" Event

"Making Spring Hats"

10 a.m. to 2 p.m. in the outdoor tent at the Ridgway Center. Create your own spring bonnet with paper, ribbons, and dried flowers. For children ages 4 to 12. Sponsored by the Members' Board.

Garden Admission Increases for Non-Residents

Members Still Enjoy Free Admission

ON FEBRUARY 1, 1998, admission to the Garden increased for adults and senior visitors who live outside the City of St. Louis and St. Louis County. The new rate for non-resident visitors is now $5.00 for adults and $3 for seniors. For tour groups, admission is $4.00 for adults and $3.00 for seniors.

Garden members and children under 12 continue to enjoy free admission to the Garden.

The increase was deemed necessary to support new features and services offered by the Garden, as well as operating costs and staffing. The new admission rate was approved by the Botanical Garden Subdistrict and the Zoo-Museum District.

For residents of the City and County, admission prices remain $3.00 for adults and $1.50 for seniors. City and County residents will continue to receive free admission to the Garden on Wednesday and Saturday mornings from 7 a.m. to noon.

NEW Members' Express!

THE next time you visit the Garden, use the new members' window at the left side of the ticket counter. A permanent sign overhead identifies the line especially for members. This is a new service designed to make visits even easier and more convenient for Garden members.

The new line for members only ensures that you will never have to wait behind visitors who are verifying their St. Louis residency for admission. Members can always enter the Garden immediately after showing a current membership card. Of course, members can always use the shortest line at the ticket counter.

If you have a question about your membership or a premium, you can get answers right at the members' window. During busy times, the Membership Services Desk is just a step away and will handle your request.

Join the Garden and receive
Free Admission
Invitations To Special Events
Members Discounts

TIM PARKER

At left: Jean Crowder and Paul McCllinton at the Membership Desk.

The Membership Services Desk 15th Anniversary

Serving Members and the Public

THE 55 men and women who staff the Membership Services Desk in the lobby of the Ridgway Center are some of the hardest working volunteers at the Garden. They answer questions, greet visitors, relay inquiries to the Membership Office, renew memberships, and sign up new members. "The volunteers at the Desk are absolutely one of the keys to our success," said Mary Krchma, membership coordinator.

During 1997, Desk volunteers processed 6,840 new or renewal memberships, generating $341,188 in revenue. This amounted to more than 3,400 hours of service by the volunteers. The Garden's membership currently exceeds 33,000 households. The Desk was established by the Members' Board in 1983 and celebrates its 15th anniversary this year.

Volunteer Profile – Paul McClinton

The chair of the Membership Desk serves a two-year term. In January, Paul McClinton became the new chair, succeeding Jean Crowder. The two had served as co-chairs during 1997. Running the Desk requires at least 15 to 20 hours a week, including individual training for the volunteers, and it is a demanding job. The Desk is especially busy during special events and at the holidays, when many people purchase their memberships.

Paul has been a Garden volunteer for 15 years, since his retirement. He began by helping out at special events; currently he works in Plant Records and in the Membership Office in addition to his work on the Desk.

Volunteer Profile – Jean Crowder

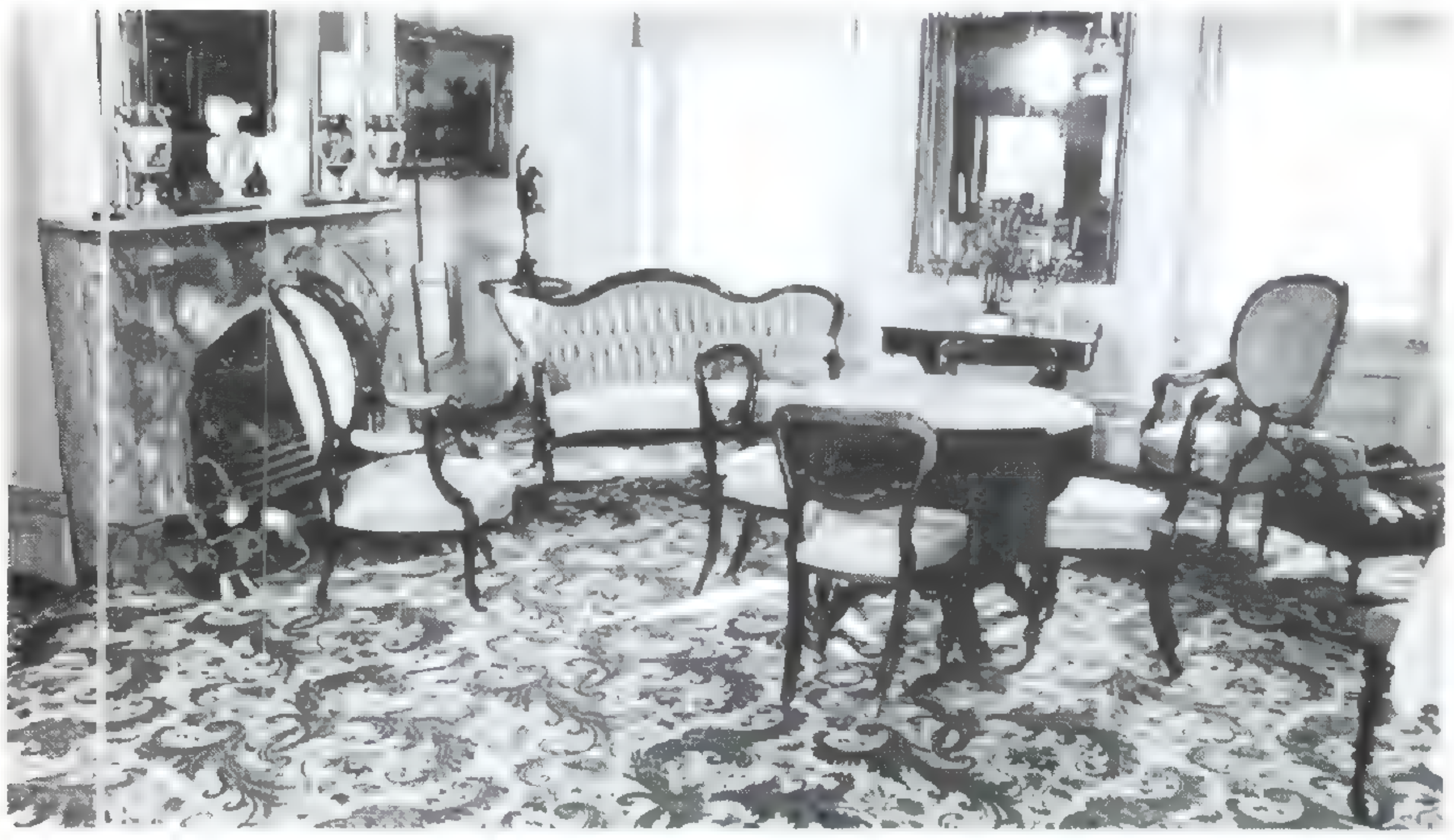
A 30-year volunteer at the Garden, Jean began as a tour guide at Tower Grove House. She joined the Tower Grove House Auxiliary 15 years ago, serving as president for two terms, and in 1994 she organized "Les Petites Dames de Mode," a successful benefit for the House.

Jean began working at the Membership Desk in 1990 and was appointed chair in 1992. In 1993 she joined the Members' Board, which she has served as secretary for the past three years. She was head of volunteers for the "Best of Missouri" Market for two years and helped to recruit during Volunteer Week on Channel 5.

In addition to her work with the Garden, Jean has been a docent at the Saint Louis Art Museum for 26 years. She is on the board of the Leukemia Society of America, St. Louis Chapter, and the St. Vincent's Home for Children. She worked for 21 years as an office manager, and she and her husband have three children.

Jean approaches volunteer work as a full time job. She says, "The Membership Services Desk is a very enthusiastic group, and the Garden staff make us feel we're really part of the team. The Garden is a magnificent place, and it's nice to know we have been a small part of something so important."

AT TOWER GROVE HOUSE



PARLOR RESTORATION Handsome new carpeting was installed during January in the double parlors at Tower Grove House. The parlors are being restored under the supervision of the Tower Grove House Historical Committee and is dedicated to the memory of Ruth Heywood Culver, one of the founding members of the committee. The new wool carpeting reproduces an historic 19th century pattern of leaves and flowers and is "fitted," or installed wall-to-wall, just as it was in Henry Shaw's day. The carpeting was woven in England on 27-inch antique looms and seamed to measure in St. Louis.

A Walking Tour of Henry Shaw's Garden

Tuesday, May 19, 1998

5:30 to 7:30 p.m., Meet at Ridgway Center

Join members of the Tower Grove House Historical Committee for a walk through the historic areas of the Garden. See and learn about the buildings and trees installed by Henry Shaw. Enjoy the new Kresko Victorian Garden, which recreates the height of fashionable 19th century garden design. Visit Tower Grove House and discover how Henry Shaw lived in his country residence. After the tour, enjoy refreshments in the tea room like those Mr. Shaw might have served. $20 for members, $23 for non-members. Tour is limited to 20. Please call Tower Grove House, 577-5150, for reservations.

An Expedition in China

Through the Great Stone Gate

THE STONE GATE PALM, *Trachycarpus princeps*, clings precariously to sheer limestone cliffs high above the Salween River, or Nu Jiang, in southwestern China. One of many unusual plants growing in the remote region, the seven-meter tree with fan-shaped leaves was first seen by the Austrian botanist Heinrich Handel-Mazzetti in 1916.

The towering cliffs of the river gorge are called the Stone Gate, pictured at left. It lies east of the Himalayas in the Gaoligong Shan, the mountains which form the border between the People's Republic of China and Myanmar (Burma). This remote region has rarely been visited by foreigners.

For six weeks last fall, Garden botanists Nicholas Turland and Gregory Pedano had the extraordinary opportunity to explore the Gaoligong Shan as part of a team organized by Li Heng of the Kunming Institute of Botany in Yunnan Province. The two were invited to join the expedition as part of the Flora of China project. The Missouri Botanical Garden is the U.S. coordinating center for the Flora of China (see below, right).

Turland, who works for the Flora of China project, and Pedano, a specialist in mosses, left on August 26 for the 36-hour journey to Kunming. Kunming, the capital of Yunnan Province, has a population of more than a million and is growing rapidly. Its economy is still primarily agricultural, and in 1999 the city will host the International Horticultural Exposition, which is stimulating a building boom. But for now, open countryside and dirt roads begin almost at the city limits.

The 500-kilometer journey from Kunming to the Gaoligong Shan took two days. The first part of the trip was through a plateau that has been farmed for centuries. In the rustic farm villages, children were shy and startled at the sight of Turland and Pedano. They had never seen westerners, because the area is restricted and there is no tourism.

Once across the Lancang Jiang, or Mekong River, the vegetation becomes much richer. Three great river systems, the Mekong, the Salween, and the Upper Irrawaddy, or Nmai Kha, divide the region into a series of deep, parallel gorges, and in the Gaoligong Shan the expedition team finally reached undisturbed evergreen broad-leaf forest.

Gaoligong Shan has been shaped by turbulent geological movement into an area of dramatic contrasts. There is tremendous variation in elevation and climate over short distances. From 760 meters in the Salween Valley, the terrain rises to peaks as high as 4,640 meters in Nujiang Prefecture. These abrupt variations create a mosaic of micro-climates that support many types of plants, including broad-leaved evergreens, conifers, bamboo forests, and alpine meadows.

The greatest threat to the vegetation of the area is road construction. A new road is being built to the Irrawaddy River over very steep, unstable terrain, and improvements are also being made to the existing road from Liuku towards Pianma. Once the land has been disturbed, the soil collapses in landslides, completely destroying the native vegetation, and only bamboo scrub grows back. When Turland and Pedano worked near the road construction sites, they were collecting plants that will soon be lost forever.

Travel over the local roads, which were often no more than bull-dozed, steep-walled tracks, was treacherous for the field team. And the climb up the vertical cliffs of the Stone Gate by a Chinese team member to collect a specimen of *Trachycarpus princeps* was a daring feat. The reward, however, was great — the specimen they collected was the first ever to be placed in cultivation outside China, at the Royal Botanic Garden in Edinburgh. In all, the team collected 1,600 specimens of vascular plants and 600 mosses, with four duplicates of each collection, for a total of about 9,000 specimens.

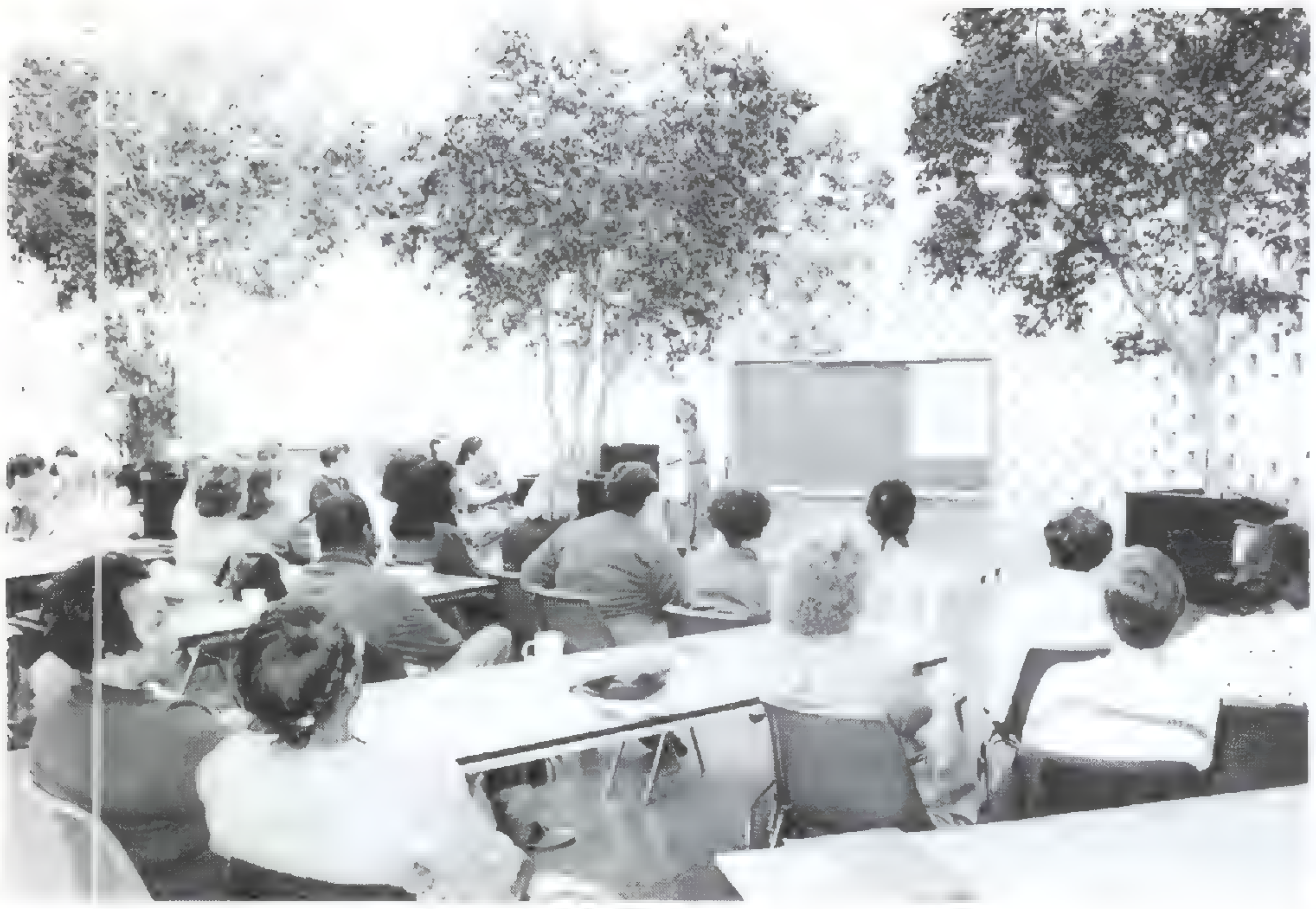
The loss of plant species in China is particularly serious because Chinese plants have exceptional economic potential. Interest in the benefits and efficacy of Chinese herbal medicines is growing outside China as well, and the world stands to benefit from the discovery of any plant that yields a new drug. The country has the largest number of medicinal plants in active use of any country in the world - an estimated 4,000-5,000 species. The uses of many of these plants are documented in texts published centuries ago.

Chinese plants are also sources of food, oils, waxes, drugs, and fibers. Hundreds of other plants, such as camellias, gardenias, and rhododendrons, are cultivated worldwide as ornamentals. Flora of China expeditions, like the one to the Gaoligong Shan, are helping to discover knowledge about the wealth of Chinese plants that may one day help people far beyond the great Stone Gate.

— *Kathryn Hurlbert, MBG Research Division*

Flora of China Meeting in Taiwan

The editorial committee for the Flora of China project met November 15-16, 1997, at the National Museum of Natural Sciences in Taichung, Taiwan. This was the first visit to Taiwan by botanists from mainland China in several decades. Missouri Botanical Garden is the U.S. coordinating center for the Flora of China, a massive international collaboration to produce the first concise, up-to-date English-language treatment of the plants of China. Shown here in the center of the front row are Peter H. Raven and, to his right, Wu Zheng-yi, the "father of Chinese botany" and former director of the Kunming Institute of Botany, co-chairs of the editorial committee.



Far left: The Garden is training hundreds of St. Louis public school teachers to use GEMS, "Great Explorations in Math and Science." Left: teachers practice a hands-on GEMS activity.

Garden Partners with Urban Systemic Initiative

E. Desmond Lee Science Outreach Program

THE Garden's E. Desmond Lee Science Outreach Program is working to improve science education in St. Louis Public Schools as part of the Urban Systemic Initiative, a national program funded by the National Science Foundation (NSF) to strengthen math and science education in city schools.

The St. Louis program is funded by a five-year, $15 million grant from NSF. The Garden is one of several partners working to provide professional development for teachers, which will provide long-term benefits to students for years to come.

In January, 1997, the Garden's Education Division began offering training programs to 249 teachers from 13 St. Louis Public Schools. Last December the Garden began working with a second group of 22 schools. The outreach training workshops use the GEMS program, "Great Explorations in Math and Science," a system of inquiry-based experiments and demonstrations developed at the Lawrence Hall of Science, University of California at Berkeley.

The Garden has been using GEMS with students and teachers since 1995 and became an official GEMS site in 1997. Through the E. Desmond Lee Science Outreach Program, the Garden also maintains a full-time teacher at the Normandy School District who uses GEMS activities to provide science enrichment for students and teachers. Garden instructors at two St. Louis magnet schools also utilize GEMS units with students, and GEMS teacher workshops are offered at the Garden and at various public schools throughout the year.

MBG Natural History Adventures

Tambopata: Wild, Untamed Amazonia

AUGUST 7 to 16, 1998

Trip Preview: Tuesday, March 3, 1998

7:30 p.m., Ridgway Center, Garden Room

Deep in the wilds of southeastern Peru is a land the National Geographic Society calls one of the ten wildest places on Earth. At the foothills of the Andes lies the untamed rain forest known as Tambopata, where a 3.7-million-acre reserve is home to thousands of species, including parrots, macaws, giant river otters, frogs, butterflies, and the elusive jaguar. Explore the town of Puerto Maldonado, visit the Macaw Recovery Project on the Tambopata River, and experience an exciting journey to a remote corner of Earth's greatest wilderness.

Madagascar: A Wildlife Adventure

OCTOBER 16 to 26, 1998

Trip Preview: Thursday, March 12, 1998

7:30 p.m., Ridgway Center, Garden Room

The island of Madagascar separated from the east coast of Africa 165 million years ago and today is home to thousands of species that exist nowhere else on Earth. See the rich variety, from searing deserts of baobabs and spiny trees to rain forests, home to captivating lemurs that live in the tree tops, exotic birds, and enchanting chameleons. Visit Berenty Reserve and the capital city of Antananarivo, lounge on white sand beaches, and voyage by native pirougue as you discover the biodiversity of the world's fourth largest island.

For more information on MBG Natural History Tours or trip previews, call (314) 577-5144.

Arboretum To Host Missouri Envirothon

This summer Missouri will send its first state team to the Envirothon, a national hands-on competition for high school students. The state competition will be held at Shaw Arboretum on April 29. The winning team will represent Missouri at the national competition in August and be eligible to win up to $2,500 in scholarships from Canon for each team member.

Teams are limited to five students in grades 9 through 12. The students will be challenged to work together to solve problems on a variety of environmental and conservation issues. Prizes will be awarded to local winners. The competition is limited this year to 20 teams on a first-come, first-served basis, and teams must register by April 1, 1998.

To prepare teachers and group leaders for the competition, a training session will be held at Litzsinger Road Ecology Center on March 12, 1998. Due to limited space, only one coach per team may attend. There is a $25 fee for training and instructional materials, which will be applied to the $50 entry fee for the competition.

To register for the training session or for more information about Envirothon, please call Celeste Prussia of the Garden's Education Division at (314) 577-5117.

CLIFF WILLIS

New Tram Shelter Will Open in April

The Tram Shelter at the Ridgway Center is being renovated with generous support from The Jackes Foundation. Demolition of the existing shelter began in February, and the new structure is scheduled for completion in April. While the walkway leading to the site is temporarily closed, signs direct visitors to the place to board the trams.

The new Tram Shelter, designed by Mackey Mitchell Associates, will be a handsome structure with a wide shady canopy and four masonry columns, which will improve access and traffic patterns. "This will be a beautiful new addition that will truly enhance visitor services at the Garden," said Peter H. Raven. "We are very grateful to The Jackes Foundation for making it possible."

Guide to the Ewan Papers Is Published

The Garden recently published the *Guide to the Ewan Papers*, an index compiled by library staff members Doug Holland, Martha Riley, and Mary Stiffler. The Guide catalogs the research files and correspondence of Joseph and Nesta Ewan, who collected materials related to their research and writings on the history of natural history for more than sixty years. The Ewan Collection, including the Ewan's research materials and more than 6,000 books, is housed as a separate special collection in the Garden library at The Monsanto Center.

The compilation of the Guide was funded by the National Historical Publications and Records Commission (NHPRC). It provides an introduction to the papers that will allow scholars to locate research materials on 10,000 individuals or institutions who were the Ewans'correspondents or their subjects of study.

Special this Spring

Early Morning Bird Walks

At Shaw Arboretum

Enjoy the quiet early morning beauty of Shaw Arboretum and learn about the many species of birds that can be found there during the height of spring migration. Both beginners and intermediate birders are welcome. Bring binoculars and dress for moderate hiking.

Teacher: James P. Jackson, author and naturalist
Three *individual* Wednesdays: April 22, 29, and May 6, 7:30 to 10:30 a.m.
Meet at Arboretum Visitor Center
$10 members, $15 non-members
Register for individual sessions by date. To register, call (314) 451-3512 during business hours. Advance registration is required.

At the Garden

Morning, before the Garden opens to the public, is one of the very best times to see and learn about the birds that pass through this area during spring migration. The peace and serenity of early morning enhance the pleasure of the experience. Both beginners and intermediate birders are welcome. A continental breakfast will be available after the walk. Bring binoculars and dress for walking.

Four *individual* Tuesdays, 7:00 to 8:30 a.m.
April 21 — Dr. Mick Richardson, MBG research staff
April 28 — Dr. Mick Richardson
May 5 — Dr. Brien Meilleur, director of Center for Plant Conservation
May 12 — Ron Goetz
Meet at Ridgway Center ticket counter
$10 members, $15 non-members
Register for individual sessions by date. To register, call (314) 577-9441, Monday through Friday during business hours. Advance registration is required.

See the Spring Courses brochure mailed recently to all members.

CLIFF WILLIS

Path in Japanese Garden Closed for Renovation

The path on the west side of the Japanese Garden will be closed from March 1 through June 1998, for installation of a new walkway and improved drainage. Visitors will not be able to walk along the west side of the lake until the construction is completed this summer. The deteriorating asphalt path will be replaced with new aggregate paving.

A grant of $250,000 was appropriated last fall by the State of Missouri to begin renovating the paths. Improvements to all the pathways in the Japanese Garden are estimated at $925,000. The Garden will continue to work to secure the remaining funds over the next few years.

Raven Honored by AAAS

In February, Dr. Peter H. Raven was honored with the American Association for the Advancement of Science (AAAS) Philip Hauge Abelson Prize, which was presented during the AAAS annual meeting in Philadelphia. The prize honors a public servant for exceptional contributions to advancing science, or a scientist or engineer for a distinguished career of scientific achievement and service to the scientific community.

In addition to his work as director of the Garden and Engelmann Professor of Botany of Washington University, Dr. Raven is currently the Home Secretary of the National Academy of Sciences and a member of the President's Committee of Advisors on Science and Technology.

The annual award was established in 1985 by the AAAS Board of Directors. The 1996 recipient of the Abelson Prize was D. Allan Bromley, Sterling Professor of Sciences and Dean of Engineering at Yale University.

GARDEN GATE SHOP

Spring Plant Sale

Thursday & Friday, April 16 & 17 — 9 a.m. to 6:30 p.m.
Saturday & Sunday, April 18 & 19 — 9 a.m. to 5 p.m.

20% Members' Discount, all four days

Featuring "In the Garden" Tables
Plants growing at the Garden this year
Flowering Carpet Roses
Perennials, Ornamental Grasses, Hardy Ferns
& many new varieties

New Varieties of Bedding Plants

Bidens 'Goldmarie', *Celosia* 'Prestige Scarlet', Heliotrope 'Mini-marine', *Ipomoea*/sweet potato 'Blackie' and 'Pink Frost', *Linaria* 'Fairy Lights' and 'Crown Jewel', *Niembergia* 'Mont Blanc', *Salvia splendens* 'Salsa Rose' and 'Salmon Bi- color', Sun-tolerant *Coleus* 'Solar Flare' and 'Solar Shadow' & many more.

New Varieties of Herbs

Basil 'Holly', a red and green ornamental also used for medicinal tea
Basil 'Genovese', Italian variety
Lavendar 'Minutolli' from North Africa
Rosemary 'Majorca', pink and Tuscan blue
Stevia, a sweet herb from Paraguay, 300 times sweeter than sugar
Valerian, a natural herbal relaxant
Scented geranium 'Clorinda', large pink blooms with a fragrance similar to eucalyptus
& many more

All proceeds from sales in the Garden Gate Shop benefit the Missouri Botanical Garden.

Come See Our New Look!

Just in time for spring, the Shop has completed renovations and is showing off its new open floor plan and fresh contemporary displays. You'll find all your old favorites, too. Stop in and see what's new!

March 13

St. Patrick's Day

Blooming red and green oxalis
Tiny living shamrocks
Shamrock gifts

April 12

Easter

Featuring blooming plants of the season: Easter lilies, Stargazer lilies, hydrangeas, azaleas, tulips, hyacinths, and many more.

New for Spring

- A unique selection of seeds: flowers, vegetables, and herbs, starting at $1.39
- New Italian vegetable and herb seeds: $2.50
- Unusual Seed Kits:
- For teenagers: "See-D" kits grow seeds in a CD case, $5
- For cooks: Culinary Herbs kit: $26.50
- For flower arrangers: Cut Flower Kit in a Flower Market Bucket, $28
- Sow & Glow Kits: Beautiful candles with seed packages, starting at $5
- Edible Flower Vinegars: Pansy & Pink Peppercorn, Nasturtium, or Wild Leek, $13 each
- Singing Bird Clock: $37 or $53 with oak frame. At each hour, the bird pictured on the face of the clock for that hour will sing.

Preservation Puzzles

- Rain Forest Frogs: $13.50
- Dragonfly and Moth: $33

Garden Gear

Featuring environmentally friendly dyes:

- Overalls in beautiful spring colors, featuring pockets for knee pads: $80
- Orchard shortalls, great to wear while gardening, comfortable, stylish & durable: $75

Books

- *Magic of Irises*, by Barbara Perry Lawton. Fulcrum Publishing, $39.95
- Scholastic National Audubon Society First Field Guides: *Wildflowers, Birds, Insects, Rocks and Minerals*, $10.95 each, for age 8 and up.

Tin Is In!

Galvanized tinware decorated with botanical motifs:

- Vases and cachepots starting at $13.
- Canister sets: $39
- Recycled aluminum containers starting at $30

Soft-Grip Tools

Garden with ease!

March 12 Members' Day

Art in Bloom

Members receive an extra five percent off Jan MacDougal's book, *Charleston in Bloom*.

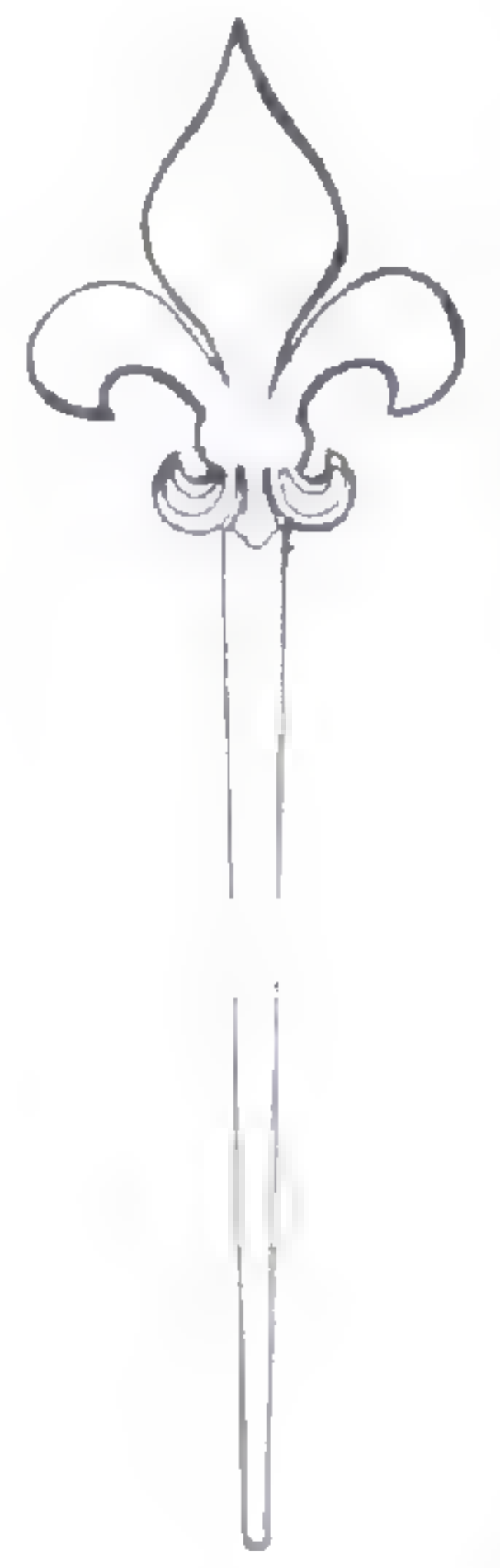
April 18 Members' Day

Bird Walk at Shaw Arboretum

Annual Spring Plant Sale is underway — no additional discount in the Shop.

New and Exclusive

1998 Garden Arts Collection



Introducing a wonderful new line of heavy-gauge steel garden accessories manufactured exclusively for the Garden Gate Shop by E. B. Studios. The collection includes elegant hose guides, plant stakes, plant markers, and trellises, all finely crafted of metal in golden, oxidized copper, or hammered patina finish. See them in the Shop this spring!

New from MBG Press

Flórula de la Reservas Biológicas de Iquitos, Perú
By Rodolfo Vásquez Martinez

Edited by Agustín Rudas Lleras and Charlotte M. Taylor. Sponsored by the John D. and Catherine T. MacArthur Foundation.

Missouri Botanical Garden Press, 1997. 1,046 pages, with illustrations.

This important new study, prepared in Spanish by Garden scientists Vasquez, Rudas, Taylor, and collaborators, is the first comprehensive treatment of any part of the Amazonian lowlands. Intended primarily for botanists and other scientists, it includes full descriptions and keys of 2,900 species. Available from the Garden Gate Shop, (314) 577-5136.

TRIBUTES
NOV – DEC 1997

IN HONOR OF

Dr. Gerald Andriole
Dr. Robert S. Mendelsohn
Mr. and Mrs. Arthur Ansehl
Mrs. Mary Jane Presberg
Mr. and Mrs. Gene Beare
Dr. and Mrs. Stephen F. Bowen, Jr.
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Impressions of Giverny

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A Gala To Benefit the Missouri Botanical Garden

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Missouri
Botanical
Garden

MAY / JUNE
1998

VOLUME LXXXVI
NUMBER THREE

Partnership Campaign Completed
GardenExpo Continues

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

WHO WOULD HAVE DARED TO DREAM, when Henry Shaw developed a ten-acre botanical garden three miles outside the city limits of St. Louis, that it would become what it is today? The completion of the Partnership Campaign and the dedication of The Monsanto Center are the most recent examples of what we can accomplish when we all work together. This magnificent building, and the partnership that it represents, symbolize the united efforts of a really remarkable group. From our trustees, our friends, our staff, and our volunteers, to those representing the federal, state, and city governments, we extend our profound gratitude for your unswerving support.

It is a wonderful and refreshing and an optimistic thought to consider the power that is in each and every one of us when we work together for an organized vision, to do good things for ourselves, for our children, for our grandchildren, and for all of the children and grandchildren of the world. It has been an extraordinary pleasure to work with all of you on the Partnership Campaign and bring it to this splendid conclusion. As a result of your commitment, today we contemplate the future with real confidence and enthusiasm. Thanks to each and every one of you for what you have contributed, and for setting the stage for the Garden's future. Thank you all, so much.

— Peter H. Raven, Director

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400

24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522

You will need a touch-tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401

Information on jobs and volunteer opportunities at the Garden is available with a touch-tone phone. Listings are updated bi-weekly. or see the Garden Website, below.

Horticultural Answer Service: 577-5143

9:00 a.m. to noon, Monday through Friday.

Master Composter Hotline: (314)577-9555

9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:
http://www.mobot.org/

Mailing Address:

Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours

9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Kemper Center for Home Gardening:

9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: open until 8 p.m., Tuesday through Saturday. Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop: 9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: 9 a.m. to 6:30 p.m. daily, Friday and Saturday open until 7 p.m. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant:

Buffet service during hours the grounds are open.

Tower Grove House: 9:45 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January. Admission is free for Garden members.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 40 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. Admission is free for Garden members. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House open 10 a.m. to 4 p.m. daily, closed on Mondays. For information call (314) 451-3512.

Moving? Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this Bulletin and mail to:

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On the Cover

Hemerocallis blooms in the Jenkins Daylily Garden are a popular sight of summer.
– Photo by Jack Jennings

Editor
Susan Wooleyhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions, announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members. For information, please call (314) 577-5118.

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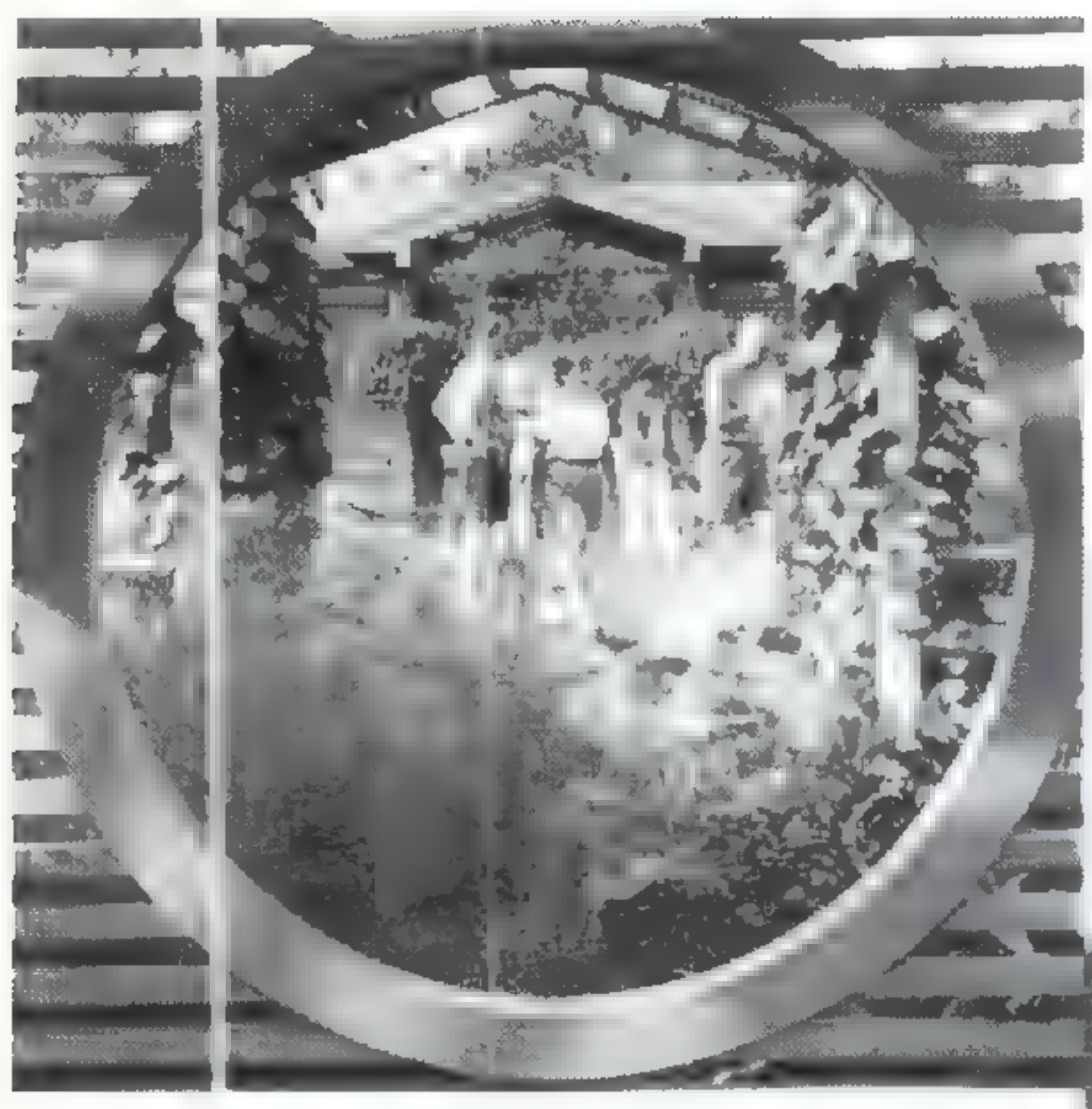


Demonstration gardens at the William T. Kemper Center for Home Gardening

Ruth Palmer Blanke Boxwood Garden

Emerson Electric Co. Conservation Center

Margaret Grigg Nanjing Friendship Garden

The Monsanto Center

Shoenberg Administration Building

Exhibits in the Brookings Interpretive Center

Chinese herbarium specimens

English Woodland Garden renovations

Joseph H. Bascom Manor House

Partnership Campaign Is Complete

$37 Million Total Is Largest in the Garden's History

THE GARDEN IS PROUD TO ANNOUNCE that the largest capital fund drive in its 139-year history was completed on February 2, 1998. Fulfilling a $1 million challenge grant from the Kresge Foundation allowed the campaign to meet its $37 million goal.

Dr. Peter H. Raven said, "The Partnership Campaign could not have succeeded without the extraordinary generosity and commitment of the Garden's Board of Trustees, particularly the campaign steering committee under the leadership of Andrew Taylor, and the leadership of two presidents, John Wallace and William Bush. On behalf of everyone associated with the Garden, I thank them for their magnificent efforts to ensure our success."

The campaign has dramatically altered the face of the Garden, delighting visitors and enhancing our potential to create and carry out policies and programs that enhance the protection and understanding of biological diversity. Twenty-three outdoor demonstration gardens at the William T. Kemper Center for Home Gardening provide a unique educational resource. The magnificent Ruth Palmer Blanke Boxwood Garden and Margaret Grigg Nanjing Friendship Garden have attracted national acclaim, as has The Monsanto Center, centerpiece of the campaign. Other remarkable achievements include the Emerson Electric Co. Conservation Center, expansion and renovation of the English Woodland Garden, the splendid educational exhibits in the Brookings Interpretive Center, restoration of the Joseph Holliday Bascom Manor House at Shaw Arboretum, naming of the Shoenberg Administration Building, and acquisition of a significant collection of Chinese herbarium specimens.

These extraordinary achievements were accomplished through a true partnership of the trustees, government, Civic Progress, members, foundations, and many other friends of the Garden. Civic Progress was the leading donor group, with gifts totaling $9.9 million, or 26 percent, of the total. The federal government, through the Department of Agriculture, made grants of $8.6 million for The Monsanto Center. Monsanto and the Monsanto Fund were the largest private donors, making gifts totalling $3 million to name the new research facility. Participation by individuals was also exceptional, with the Members' Board, Garden members and staff giving over $600,000 to support the campaign.

Dinner Honors Major Campaign Donors

At left: Andrew Taylor, trustee and chair of the campaign Steering Committee; Peter Raven; and Stephen Brauer, trustee and Special Gifts chair. Center, left: Mary Ann and Desmond Lee, trustee; Barbara and Andrew Taylor. Center, right: David Darnell, NationsBank; Peter Raven; Jack Thomas, trustee and Individual Gifts chair.

ON FRIDAY EVENING, APRIL 3, the Garden entertained its trustees and other major donors to the Partnership Campaign at a dinner at The Monsanto Center. Guests enjoyed tours of the building and a video featuring the achievements of the campaign.

Speakers for the evening were Andrew C. Taylor, Garden trustee and chair of the Campaign Steering Committee; Hendrik A. Verfaillie, president of Monsanto; and Peter H. Raven. We extend our deepest gratitude to all donors whose gifts to the Partnership Campaign helped to make it a success.

Dedicating The Monsanto Center April 4, 1998

THE MONSANTO CENTER, the Garden's new $19.4 million, state-of-the-art research facility and centerpiece of the Partnership Campaign, was formally dedicated at 10:30 a.m. on Saturday, April 4. Speakers for the ribboncutting ceremony were Douglas Randall, professor of biochemistry at University of Missouri-Columbia; Philip Needleman, chief scientist at Monsanto; the Honorable Clarence Harmon, Mayor of the City of St. Louis; Ernest Nashville, representing the Honorable William L. Clay of the United States House of Representatives; the Honorable Richard A. Gephardt, House Democratic Leader, United States House of Representatives; The Honorable Christopher S. Bond, United States Senator for Missouri; and Peter H. Raven, director of the Garden. The keynote address was given by Braulio Ferreira de Souza Dias, national biodiversity coordinator, Ministry of Environment, Water Resources and the Amazon Region, Brazil. Stephen F. Brauer, vice-president of the Board of Trustees, was master of ceremonies.

Right: At the dedication ceremony are (from left) William Orthwein, trustee and Distinguished Benefactor to the Partnership Campaign; Mayor Clarence Harmon; Congressman Richard Gephardt; Peter Raven; Andrew Taylor; Senator Christopher Bond; Stephen Brauer.

Opposite page, bottom left: John Mason, president of Monsanto Fund; Sima and Philip Needleman, chief scientist, Monsanto.

Opposite page, bottom right: (from left): Margot and Parker Condie, MBG trustee; Gerda and Hendrik Verfaillie, president of Monsanto.

Right: Cutting the ribbon to open The Monsanto Center are (from left): Douglas Randall, Philip Needleman, Clarence Harmon, Stephen Brauer, Andrew Taylor, William Orthwein, Braulio Dias, Christopher Bond, Richard Gephardt, and Peter Raven.

Below: Braulio Dias of Brazil, keynote speaker.

Addressing the guests at the ceremony, **Professor Randall** said, "The United States Department of Agriculture provided almost $8 million toward this facility.... With this investment, the USDA was looking to the future and joined the partnership that is vital not only for U.S. agriculture interests but for the survival of this planet. This unique treasury of specimens and genetic materials is part of what we must use to help win the race to feed people without wrecking the environment, to produce safer and more nutritious food, to help sustain our world."

Mayor Harmon noted that "As the Garden has expanded, its arms have reached further into our community and its roots have grown deeper. The Garden has always understood the importance of involving surrounding neighborhoods in its plans for expansion, insuring that it is not only an asset to the city but a foundation for revitalization."

Speaking on behalf of **Congressman Clay**, Ernest Nashville said, "It is gratifying to know that the City of St. Louis will be home to one of the world's preeminent plant diversity research centers.... The work to be performed here promises to make a major contribution toward protecting and preserving the Earth's environmental health and, in so doing, improve the quality of life for all."

Congressman Gephardt said, "This project can eventually help lead to...powerful optimistic answers to the problems of feeding the world's population without causing damage to the environment; in fact, helping the environment to regenerate itself."

Senator Bond said, "As a result of the contributions and the visions of those assembled today...the George Washington Carvers of this and future generations will have an essential resource that can help provide the answers to some of the most profound, challenging, and important questions for the 21st century."

In the keynote address, **Professor Dias** said, "Biodiversity is our insurance policy for a sustainable future.... Developing countries like Brazil are paying a large cost for lacking the necessary scientific knowledge about biodiversity. This ignorance reduces the effectiveness of conservation measures and limits opportunities for their sustainable use....

"We need to...[promote] stronger international cooperation — partnerships between government, the academic sector, and the private sector. We also need to train more and better scientists. Fortunately, we have institutions like the Missouri Botanical Garden, which are at the forefront of scientific excellence and international cooperation."

"Managing Human-Dominated Ecosystems"

National Conference Celebrates Dedication of The Monsanto Center

TO CELEBRATE THE DEDICATION of The Monsanto Center, a national conference on economics and the environment was held at the Garden March 26-29, 1998. The meeting was co-sponsored by the Garden, the Center for Conservation Biology at Stanford University, and the Columbia Earth Institute at Columbia University. Financial assistance was provided by the Albert P. and Blanche Y. Greensfelder Foundation and Monsanto Fund.

The conference attracted nationally recognized scientists, economists, corporate leaders, and educators. They gathered at the Garden to assess the future of the world economy, global environment, and how the two interact. A book will be published on the proceedings.

James S. Miller, head of the Department of Applied Research at Missouri Botanical Garden and one of the organizers of the conference, said, "We hope that it will draw attention to efforts to move toward a society where human impact on the environment is not consistently negative, but where things are carried out in a manner that does not use up natural resources."

The organizing committee included Graciela Chichilnisky, UNESCO Chair of Mathematics and Economics at Columbia University and director of Columbia's Program on Information and Resources; Gretchen C. Daily, fellow at the Energy and Resources Group, University of California, Berkeley; Paul R. Ehrlich, Bing Professor of Population Studies at Stanford University; Geoffrey Heal, Garrett Professor of Public Policy and Business Responsibility at Columbia University Business School; and Dr. James Miller of the Garden.

Also participating were corporate executives widely recognized for environmental leadership, including Ray C. Anderson, chairman and chief executive officer of Interface, Inc., and John Browne, group chief executive of The British Petroleum Company, p.l.c.(BP). Mr. Browne, who delivered the keynote address for the conference, was awarded the Henry Shaw Medal, the Garden's highest honor

Browne Is Awarded the Henry Shaw Medal

John Browne, head of BP, one of the world's largest oil and chemical companies, has spoken and written extensively about corporate responsibility, especially in the global context, and about climate change and the precautions the corporate world must address to ensure a sustainable world for future generations.

In his speech at the Garden, Browne said, "I don't believe we fully understand the relationships involved [in global warming], but I do believe that we can't ignore the mounting evidence....The [issue] is complex and there is much to be resolved. Nevertheless, I think it is fair to say that the world as a whole has moved from 'whether' to 'how'. "

Browne continued, "Companies are ultimately social beings. They depend on society for their existence and for their prosperity. They must therefore listen to and understand the concerns of society."

PHOTOS BY TIM PARKER

Top: Shown at the reception in honor of Mr. Browne are (from left) Peter H. Raven; John Browne, group chief executive, British Petroleum Company; and Charles F. Knight, Garden trustee. Center left: Conference delegates attended sessions in the Ridgway Center. Center right: John Browne and Peter Raven in the herbarium. Bottom: Jack E. Thomas, Jr., Garden trustee, presented the Henry Shaw Medal to John Browne preceding Browne's keynote address to the conference on March 26.

Overnight Education Facility Proposed

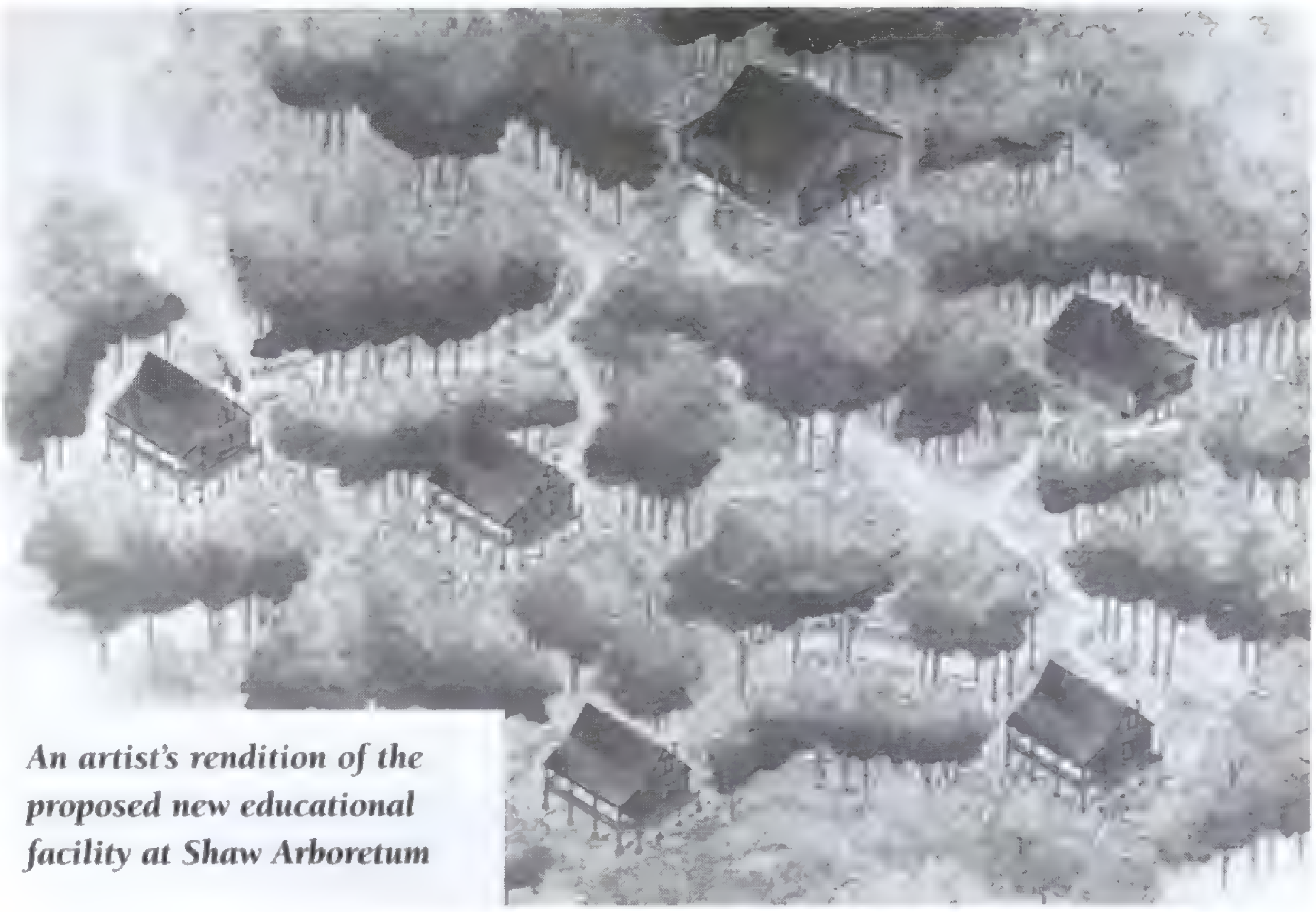
PLANNING AND FUND RAISING are currently underway for a new overnight education facility at Shaw Arboretum. An important component of the Arboretum's 1990 Master Plan, the new facility will provide new and exciting opportunities for the Arboretum's education program.

The overnight facility will include four cabins and a larger assembly building. It will accommodate up to 65 children; programs for adults will generally involve fewer participants. Located on the east side of the Arboretum within short walking distance of the prairie, woodlands, wetlands, and the Meramec River, the facility will provide easy access to a wonderful diversity of natural features and distinct plant communities.

The cluster of buildings will operate in conjunction with the Adlyne Freund Education Center. The Freund Center will be an integral part of the facility, serving as a dining area and meeting area. It will also continue to operate independently to accommodate the many educational programs presently conducted there. Watch for more on new developments at the Freund Center in the next *Bulletin*.

Outdoor education at Shaw Arboretum provides field activities designed to help students better understand the processes that support life on earth and our role in it. An overnight facility will give children and adults a chance to disengage from the distractions of daily life and experience the wonders of nature directly.

In today's world, it is safe to say that many children and even adults have little or no opportunity to spend time in a natural environment. The Arboretum's overnight facility will replace television with fireflies, radios with singing frogs, and traffic with night sounds. Participants will gain an appreciation for the simple wonders of nature, such as the call of a whip-or-will or the beauty of dew-covered spider web at dawn.



An artist's rendition of the proposed new educational facility at Shaw Arboretum

These direct encounters with the natural world, combined with study and observation of the diverse natural features of the Arboretum, make this proposed facility an extremely valuable educational tool. Children's and family programs, teacher training, photography workshops, and many other activities would be served by a facility of this type.

John Behrer, director of the Arboretum, said, "The project represents a very exciting and integral part of the Arboretum's overall education mission, and will be a great asset to the St. Louis region."

Gaylord Foundation Supports Internships

SHAW ARBORETUM has been training education students in techniques of environmental education since 1995, thanks to support from the Clifford Willard Gaylord Foundation. The funding makes it possible for students from local colleges to spend internships from 12 weeks to two semesters at the Arboretum. Interns assist the staff by preparing, observing, and teaching outdoor classes and doing special projects.

The current Gaylord intern, Bill Golladay, is working toward his bachelor's degree in biology and secondary education at University of Missouri–St. Louis. Bill also works part-time as a hardware engineering manager. He decided to change his career and become a teacher as a result of his experiences leading outdoor programs for the Sierra Club's Inner City Outings Group and for the Outdoor Adventures Program of St. Louis County Parks.

Bill said, "I've enjoyed having the opportunity to work with students of many different ages and backgrounds, both outdoors and in the classroom. But most rewarding has been the chance to work with the Arboretum education staff. Their ability to guide and encourage me, while also accepting me as part of the team, shows why the Arboretum is so well respected."

PHOTO BY GEORGE TRIBBLE

Intern Bill Golladay teaches a class at the Arboretum about making maple syrup.

Six education students have been Gaylord interns at the Arboretum since 1995. They are: Jennifer Chitwood, Travis Plume, and Carl Voss from East Central College, Ellen McCray from Webster University, and Emily Hackman and Jackie Schuette from University of Missouri–St. Louis.

Lydia Toth, manager of education at Shaw Arboretum, said, "We are very grateful to the Gaylord Foundation for their support of higher education in the St. Louis area. The interns have been an enormous asset for us, and they have gained valuable teaching experience in the field of environmental education."

—With assistance from Miriam Krone, Shaw Arboretum

Gypsy Moths

IT'S FUNNY how things work out sometimes. In 1869, a French scientist living in Massachusetts innocently imported some caterpillars for the purpose of breeding an improved silkworm. However, these exotics proved unsuitable, dooming the project. The story should have ended there, were it not for an inopportune windstorm which broke open some of the cages, allowing a number of the caterpillars to escape into a nearby woods. Unfortunately, these were gypsy moth caterpillars, *Lymantria dispar.* The rest of the story is all too familiar, as this moth is now one of North America's most devastating forest pests.

Gypsy moths prefer to feed on oaks, but they are also known to feed on the foliage of hundreds of other species of plants found in North America. These include hickories, alder, basswood, river birch, sweet gum, willows, hawthorn, serviceberry, sumacs and witchhazels, to name just a few of our native species.

The Coming Threat

As the gypsy moth continues to expand its range at a rate of about 15 miles per year, it is likely to become established in Missouri forests within the next few decades, perhaps by the year 2030. Once here, they are expected to have a serious impact on the health and makeup of our native oak-hickory forests and the economic and biological systems dependent on these forests.

Monitoring

However, they could arrive sooner. The first adult moth found in Missouri was trapped near Springfield in 1974. It is likely that it hatched from a pupal case attached to a vehicle which had recently visited an infested area. Such accidental movements probably account for many new sitings.

Moths have been found somewhere in our state in every year since 1980. Trapping is used for monitoring potential outbreaks. This is done jointly by the Departments of Conservation and Agriculture, with the help of several other agencies and many volunteers.

Areas where catches are found are closely monitored in subsequent years until it can be determined that no permanent populations exist. However, traps only detect adult male moths, they do not control the pests.

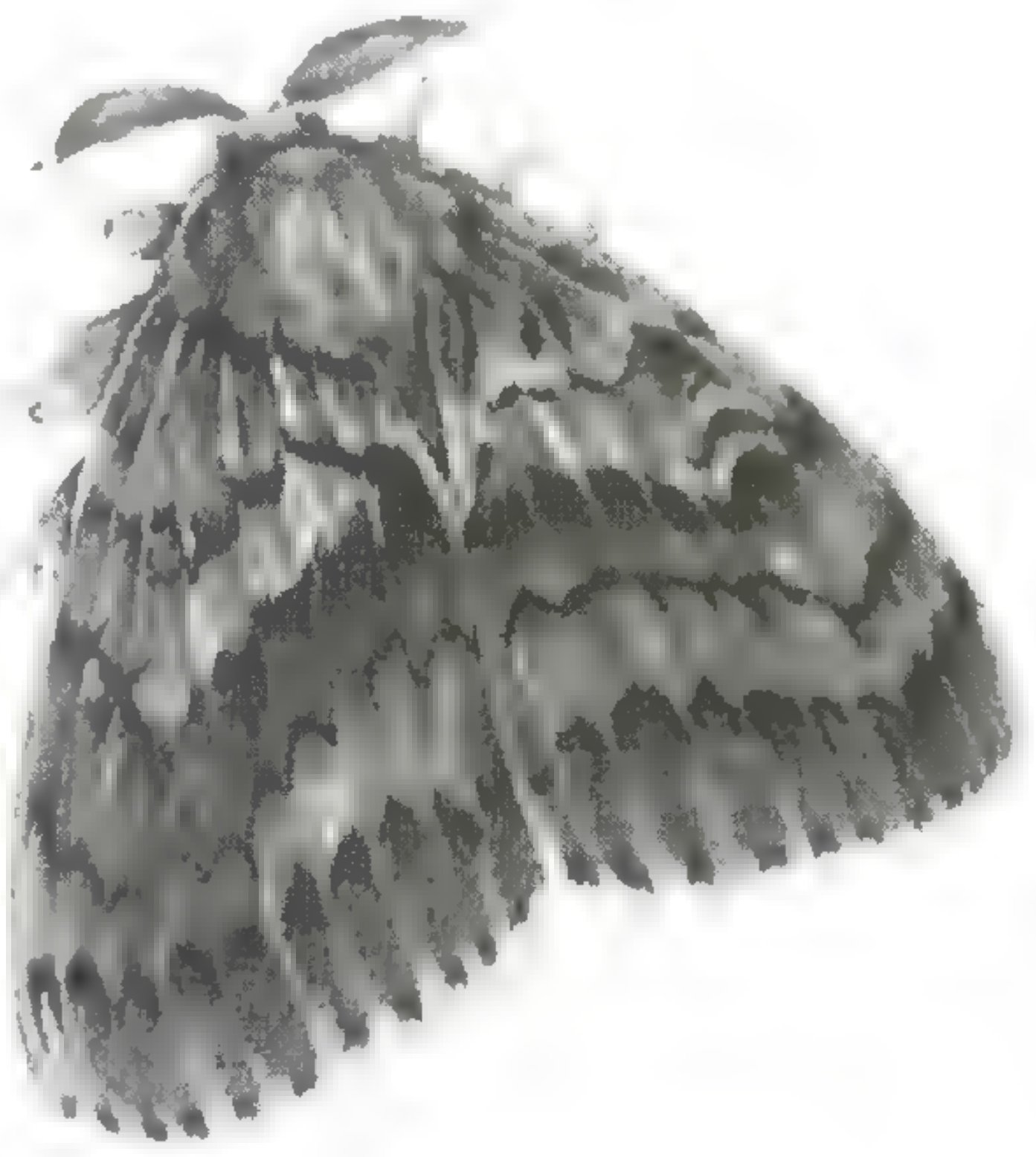
Life Cycle

Gypsy moths have four life stages. Caterpillars normally hatch from egg masses beginning in spring from April through May. They typically pass through several instars, or stages. Caterpillar color varies with the instar, but when fully grown they are brown, hairy, two to three inches long, with five pairs of blue knobs, or tubercles, and six pairs of red knobs along their backs.

In early to mid-summer, June through July, mature caterpillars spin a brown cocoon in a protected place and enter a pupal, or resting stage. About two weeks later they emerge as adults.

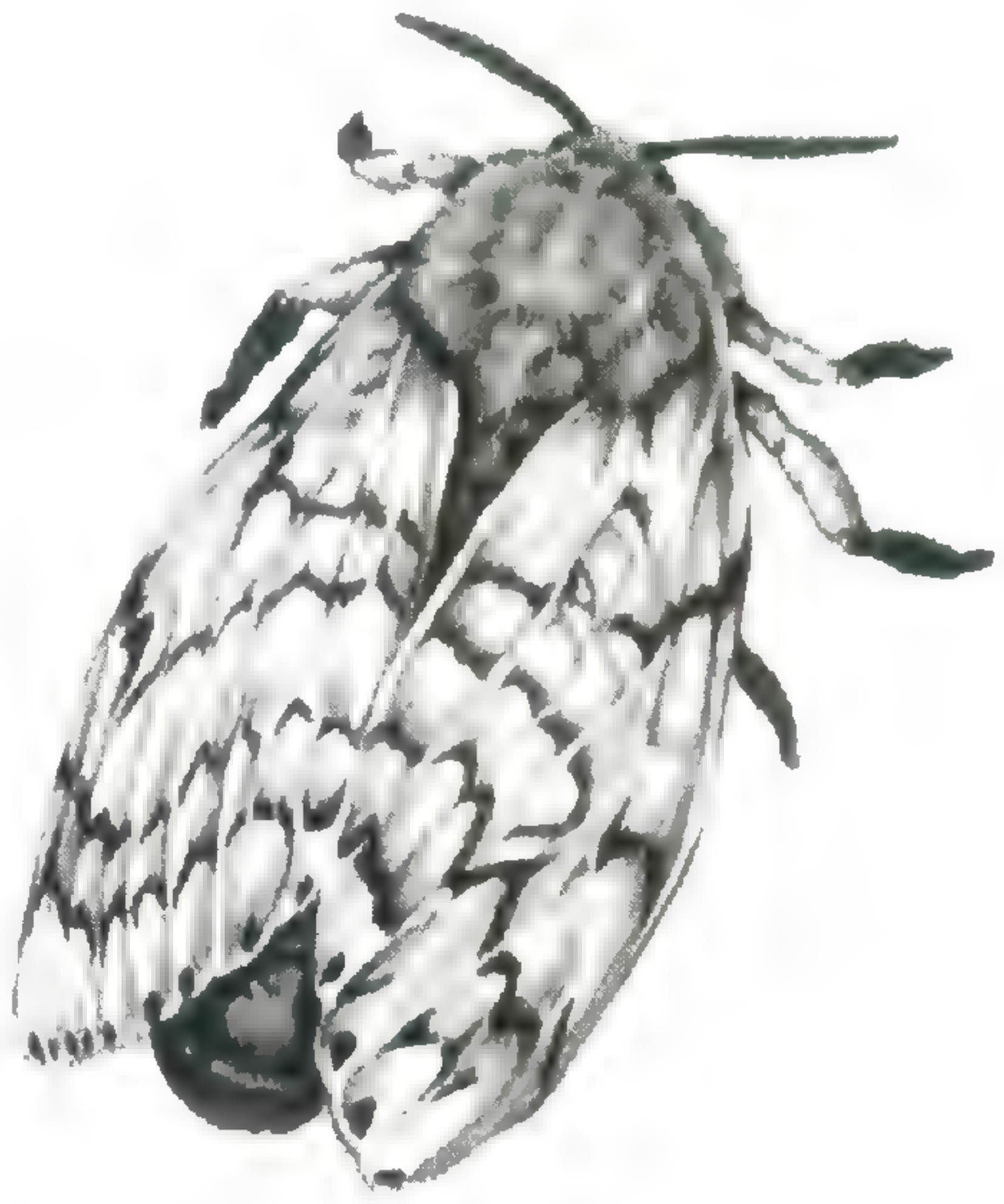
Eggs

After mating, females start laying eggs about mid-July through mid-August. Egg masses are light tan to yellow in color, shaped roughly like a thumbprint, are covered with hairs from her body, and contain from 100 to 1,000 individual eggs. They may be laid on the underside of tree limbs, bark, woodpiles, rocks, buildings, and vehicles including cars, trucks, campers, mobile homes, etc.



Male Gypsy Moth

Males are brownish-gray moths with a wingspread of about one and one-half inches, and can fly.



Female Gypsy Moth

Females are white with black markings and slightly larger than the males. Females are incapable of flight.

Illustrations courtesy of the Missouri Department of Conservation

Eggs overwinter and hatch out the following spring. The small caterpillars frequently climb to the tops of trees, attach themselves to strands of silk, and are blown considerable distances by the wind to new feeding sites, a process known as "ballooning".

Control

For now, controlling gypsy moths in Missouri centers principally on prevention through the monitoring programs. Where outbreaks have occurred, eradication has been prompt.

Several common insecticides can be sprayed for gypsy moths. The biological insecticide BT, *Bacillus thuringiensis,* is frequently used. BT is a naturally occurring disease that only kills caterpillars.

Gypsy moth populations often fluctuate from year to year, depending on a variety of factors. Adverse weather may have an effect. There is also an assortment of agents that are known to kill the moths in nature. These include over 20 insect parasites and predators that have been introduced over the last 100 years from the gypsy moth's native range in Asia and Europe.

Small mammals are also important predators, eating both adult and caterpillar stages. Birds will also prey on gypsy moths, though this is not thought to affect North American populations significantly. A virus has been known to periodically cause population collapses.

The "Lost" Fungus

Perhaps the most intriguing natural control is a seemingly mysterious fungus that was thought to have been first observed on dying caterpillars in Connecticut in 1989. It was eventually identified as *Entomophaga maimaiga*, a species apparently brought from Japan by scientists early in the century. It was released in the suburbs of Boston about 1909, but did not seem to work and was eventually forgotten.

The "lost" fungus has reappeared and been responsible for enormous kills of gypsy moths in eastern states in recent years, sometimes as much as 90 percent of caterpillar populations in heavily infested areas. Wet weather facilitates the spread of this fungus, which is harmless to other animals with the exception of a few closely related moths. The fungus can be brought from one area to another and may someday yield a commercial control product.

But is the fungus the ultimate answer to the gypsy moth problem? One thing is certain. Although this fungus holds great promise, it is a living organism just like the gypsy moth, and very likely subject to its own natural, cyclical fluctuations. The gypsy moth has been feeding in forests for many centuries. Only time will tell just how the final chapter of this story will be written.

For More Information

To report sitings of suspected gypsy moth eggmasses, pupae, or moths, or to receive further information, call the Missouri Department of Agriculture, (573) 751-5505, or the Missouri Department of Conservation, (573) 751-4115.

Periodical Cicadas

Brace yourselves! As we plunge into another busy growing season, be prepared for the emergence of a large brood from the great Southern race of the 13-year periodical cicada. The emergence period lasts about six weeks beginning near the end of May. Infestations will be spotty, with some areas having few or no cicadas, while others will have significant numbers. If you are unlucky enough to be close to a heavy onslaught from the cicadas, the shrill ceaseless "singing" of the love-struck males will be a threat to the peace of mind of those folks in need of a quiet respite.

Periodical cicadas have stout black bodies a little more than an inch long and clear, orange-veined wings that extend well behind their body. They are sometimes erroneously referred to as locusts. They differ from their less obtrusive cousins, the annual "dog day" cicada, by their darker coloring, smaller size, and reddish eyes. There are several broods of 13-year cicadas, each with a different schedule, plus several different broods with 17-year cycles.

Damage

Female periodical cicadas are equipped with a tough ovipositor that they use to tear rows of slits along the length of slender twigs and trunks, into which they lay eggs. Stems and branches with a diameter of two inches or less are most vulnerable.

Oak, hickory, apple and dogwood are the preferred hosts. The cicadas' activity can be very damaging to affected plants, eventually causing the injured parts to snap off in windy weather. This may merely result in cosmetic injury to twigs on larger trees,

continued on page 10

WORK N' TELL DEMONSTRATIONS at the Kemper Center for Home Gardening

Drop in at the Summer Plant House every Saturday in June and find out everything you always wanted to know about herbs. The hands-on demonstrations are free and no reservations are required, 11 a.m. to noon.

June 6 Saturday

"Herbs in Containers"

June 13 Saturday

"Herb Baskets"

June 20 Saturday

"Herbal Oils and Vinegars"

June 27 Saturday

"Culinary Herbs"

And Don't Miss —

Tree Climbing Championship June 13

8 a.m. to 4 p.m., just outside the Kemper Center for Home Gardening. The Midwestern Chapter of the International Society of Arboriculture will hold its Tree Climbing Championship, consisting of five events. Free with Garden admission.

May 16, 23, & 30 Saturdays

"Wood You Recycle?"

Bring your plastic gardening pots to the Garden May 16, 23, and 30, and receive a certificate for a free plant, redeemable at the Kemper Center for Home Gardening.

The plastic pots collected at the Garden will be recycled to make plastic "wood," an excellent material for constructing outdoor decks and walkways. The Kemper Center will have a display of products made from recycled plastic.

"Wood You Recycle?" is sponsored by KMOX, the Suburban Journals, Shop-n-Save, and Jefferson County/St. Louis Solid Waste District.

Home Garden Contest

The Garden, in partnership with the St. Louis Post-Dispatch, KTRS, and Gateway Greening, Inc., is sponsoring a Home Garden Contest during May. Submit photos of your home garden at the Ridgway Center, 4344 Shaw Boulevard, addressed to Gateway Greening. The deadline for entries in May 30, 1998.

Ken Miller of KTRS will present a workshop on May 9, from 10 to 11 a.m., at the Kemper Center, with photos of past winners and non-winners and tips for taking prize-winning pictures.

This year's winners will be announced in the Post-Dispatch on June 20, 1998. The winning photos will be on display during July at the Kemper Center — come choose your favorite!

PEST ALERT

continued from page 9

but can literally kill young trees or shrubs if their trunk breaks in half as a result.

It is often several weeks before branches detach and fall to the ground. Even if branches don't break, callus tissue that develops around the wound often slowly girdles and kills stems over the next several years.

Control

Prune stems and twigs promptly after damage is noticed and dispose of the trimmings. This important step will help reduce numbers of cicadas for the next cycle.

Once on the ground, the eggs hatch and the tiny young burrow into the soil, where they feed on roots for the remainder of their respective cycles. When emergence calls again, they burrow upwards, crawl out of the ground and climb up a stick, tree trunk, or any other handy object. Their thorax splits, and a winged adult emerges. When their wings are dry, they fly into a nearby tree, leaving behind the hard, empty shell.

Once egg laying begins, it is very difficult to prevent plant damage from periodical cicadas. Insecticides are only minimally effective when large numbers are present. To prevent injury to plants, delay planting young trees and shrubs until after the emergence period has ended. Where this is not feasible, small woody plants should be protected with netting, screening, tree wraps, or any other cover that will effectively exclude these pests for the next few weeks.

Japanese Beetles

A third pest likely to be more of a problem in years to come is the Japanese beetle. Watch for more information on this in the July issue.

— Chip Tynan, MBG Horticulturist

PHOTOS BY CLIFF WILLIS

Visitors in the Brookings Interpretive Center are enthralled by the acacia-ant exhibit. Right: One of the *Pseudomyrmex* ants on an acacia branch. The ferocious ants feed from the tiny yellow leaflet tips.

ANTS on the Attack!

WHEN YOU VISIT THE BROOKINGS INTERPRETIVE CENTER, be on the lookout for the ants — but don't worry, they can't escape.

And that's important, for the ants living on the bullhorn acacia shrub in the terrarium can really sting. The ants were collected last December in the tropical forests of Belize in Central America by Climatron horticulturist Tom Hecker, who was covered with painful bites for his efforts. After a period of quarantine at the Smithsonian Natural History Museum, the ants were installed in the Brookings Center exhibit in January.

Garden biologists believe it to be the first exhibit of its kind in the United States.

The large glass display where the acacia shrub grows was carefully designed to be escape-proof.

The ant-acacia relationship is one of the most fascinating examples of inter-species cooperation found in the natural world. In the wild, from southern Mexico to northern Colombia, certain species of *Acacia* shrubs, known as bullhorn acacias, are inhabited by ants of the genus *Pseudomyrmex*. The ants live in the bullhorn acacia's large, hollow thorns, whose shape resembles the horns of a bull. The ants eat the sugars from the plant's nectary glands, found on its stems, and fats and proteins from the yellow leaflet tips, called Beltian bodies after the naturalist Thomas Belt, who first described the ant-acacia relationship in 1874.

In return for food and shelter, the ants will instantly attack with potent stings any bird, insect, or mammal that touches the shrub. The industrious ants also prune away vines and other plants that threaten to grow over the acacia.

ANTS

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This fascinating symbiotic relationship is an example of "co-evolution," a process first described by the Garden's director, Peter Raven, and Paul Ehrlich, a biologist at Stanford University. In co-evolution, two organisms develop dependence on each other over eons.

"In response to questions and suggestions from visitors, we have improved many of the displays in the Brookings Center," said Greg Basco, manager. "For example, we made some displays easier to understand. We also added Central American red-eyed tree frogs (*Agalychnis callidryas*) and anole lizards (*Anolis sagrei*) to the "Natural Recycling" exhibit, and put containers with pickled plant specimens on the 'Botanists' Desks' to attract visitors to the multimedia computer displays."

Basco added, "This summer we'll have special living displays featuring some of the intriguing plants and animals of the tropics. Two terraria will house poison dart frogs — fortunately, they lose their toxicity in captivity! We'll also have Seychelles Island day geckoes, *Phelsuma astriata*, which pollinate the double coconut, *Lodoicea maldivica*, the world's largest seed, and a representation of one of the world's most threatened ecosystems, the mangrove forest."

There is always something new and exciting to see in the Brookings Interpretive Center. Stop in soon, and check it out on the Garden's Website at <http://www.mobot.org/mobot/brookings>.

SPRING ARRIVALS — The ewes and ram grazing at the Garden have been blessed with two baby lambs this spring! The lambs, which appeared just in time for Easter, are found frolicking with their parents on the grass near the Kemper Center. The flock of life-sized sheep sculptures, of epoxy stone and bronze, are from the Greenberg Gallery of St. Louis.

PHOTO BY JACK JENNINGS

A pair of Velociraptors on the prowl in the Climatron rain forest.

DINO-Mite! Take a "Dinosaur Safari" in the Climatron

May 15 – July 31

THE LUSH GREEN FRONDS OF CYCAD PLANTS have been around since dinosaurs walked the Earth. This summer the cycads in the Climatron will have company again, as 30 life-sized and incredibly lifelike dinosaurs will be displayed among the rain forest foliage. Sounds of the primordial swamp will reverberate through the Climatron, and a complementary fossil display will be on view in the Brookings Interpretive Center.

Guy Darrough, a local paleontologist who has provided fossils to the Smithsonian Institution, created the models based on meticulous research. The $12,000 figures are as true to life as the fossil records allow, complete with scars and irregular scales. The realistic setting in the Climatron will give visitors a glimpse of what the dinosaurs' life in the prehistoric world was really like.

According to Darrough, most dinosaurs were less than 15 feet tall. The largest creature in the Climatron will be a 30-foot *Maiasaura*, or "good mother lizard," displayed with eggs and babies. The three-month exhibit will also feature nine *Velociraptors*, the attack dogs of the dinosaur world, seven *Pterosaurs* with four-foot wingspans soaring overhead, a dozen *Compsognathus*, a lizard-sized dinosaur, and a 40-inch *Euroraptor*. There isn't enough room for the colossal *Tyrannosaurus rex*, but it will be represented by a nest with eggs.

Calendar

May 2 & 3
Saturday & Sunday

Garden Expo: "May Day Celebration"

10 a.m. to 5 p.m. daily, Kemper Center. Maypole celebration Saturday at 2 p.m. KMOX live broadcast Saturday, 11 a.m. to 12:45 p.m. Container gardening workshops, lawn care demonstrations, "Edible Flowers" cooking classes, tours of the Japanese Garden and greenhouses, children's activites, and more! Free with Garden admission.

African Violet Council Show and Sale

9 a.m. to 5 p.m. daily, Orthwein Floral Hall. Free with Garden admission.

May 9 & 10
Saturday & Sunday

GardenExpo: "Scents and Sensibility"

10 a.m. to 5 p.m. daily, Kemper Center. "A Passion for Flowers" with Carolyne Roehm, Saturday in Shoenberg Auditorium, 2 p.m. "A Victorian Mother's Day" with Carol Ann Miller, Sunday, noon to 4 p.m. "Fragrant Plants" workshops, "Sensible Vegetables" demonstrations, "Cooking with Herbs" classes, "What's In Bloom?" tours, "Making Spring Hats" for children, and more! Free with Garden admission.

May 15 Friday

"Dinosaur Safari"

9 a.m. to 5 p.m. daily through July 31. See page 11. Free with Garden admission.

"Botanicals from the Ozarks"

10 a.m. to 4 p.m. daily through July 10, Tuesday through Sunday, Bascom Manor House, Shaw Arboretum. Botanical illustrations and watercolors by Missouri artist Linda Ellis. Free with Arboretum admission.

May 16 & 17
Saturday & Sunday

Earth Day Community Festival

10 a.m. to 5 p.m. daily, Tower Grove Park and Missouri Botanical Garden. Live music and entertainment on two stages, over 120 educational exhibits, great vegetarian food, fun and education for the whole family, Earth Art Area, 5K "Run for the Earth" (8:30 a.m. Sunday), "All-Species Parade" (2 p.m. Sunday), Bike Ride (Sunday). Free admission. Presented by the Alliance for a Livable World. For information call (314) 776-4442, email earthday@moneyfund.org, or see the Website at <www.moneyfund.org>.

May 16 & 17
Saturday & Sunday

Bonsai Society Spring Show and Sale

9 a.m. to 5 p.m. daily, Orthwein Floral Hall. Free with Garden admission.

Dahlia Society Sale

9 a.m. to 5 p.m. Saturday, 9 a.m. to 3 p.m. Sunday, Beaumont Room. Free with Garden admission.

May 23 & 24
Saturday & Sunday

Rose Society Show

1 to 5 p.m. Saturday, 9 a.m. to 5 p.m. Sunday, Orthwein Floral Hall. Free with Garden admission.

May 23 - 25
Saturday – Monday

La Fete Francaise

A celebration of our region's French cultural heritage, co-sponsored by Les Amis and the National Park Service. Saturday: events begin at 10 a.m. at the Old Courthouse in St. Louis with music, theatre, food, and more. **"History of the Fleur de Lys,"** 3:30 p.m. in the Old Courthouse rotunda: the Garden co-sponsors a lecture by O. David Niswonger, president of the American Iris Society, who will speak on origins of the elegant symbol of France. A recipient of two Dykes Medals, the highest award from the American Iris Society, Niswonger has introduced more than 150 varieties of irises. Sunday events for "La Fete Francaise" will be held in St. Genevieve and Monday events in Cape Girardeau, where Mr. Niswonger will repeat his

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May 22 Friday *Rose Evening*

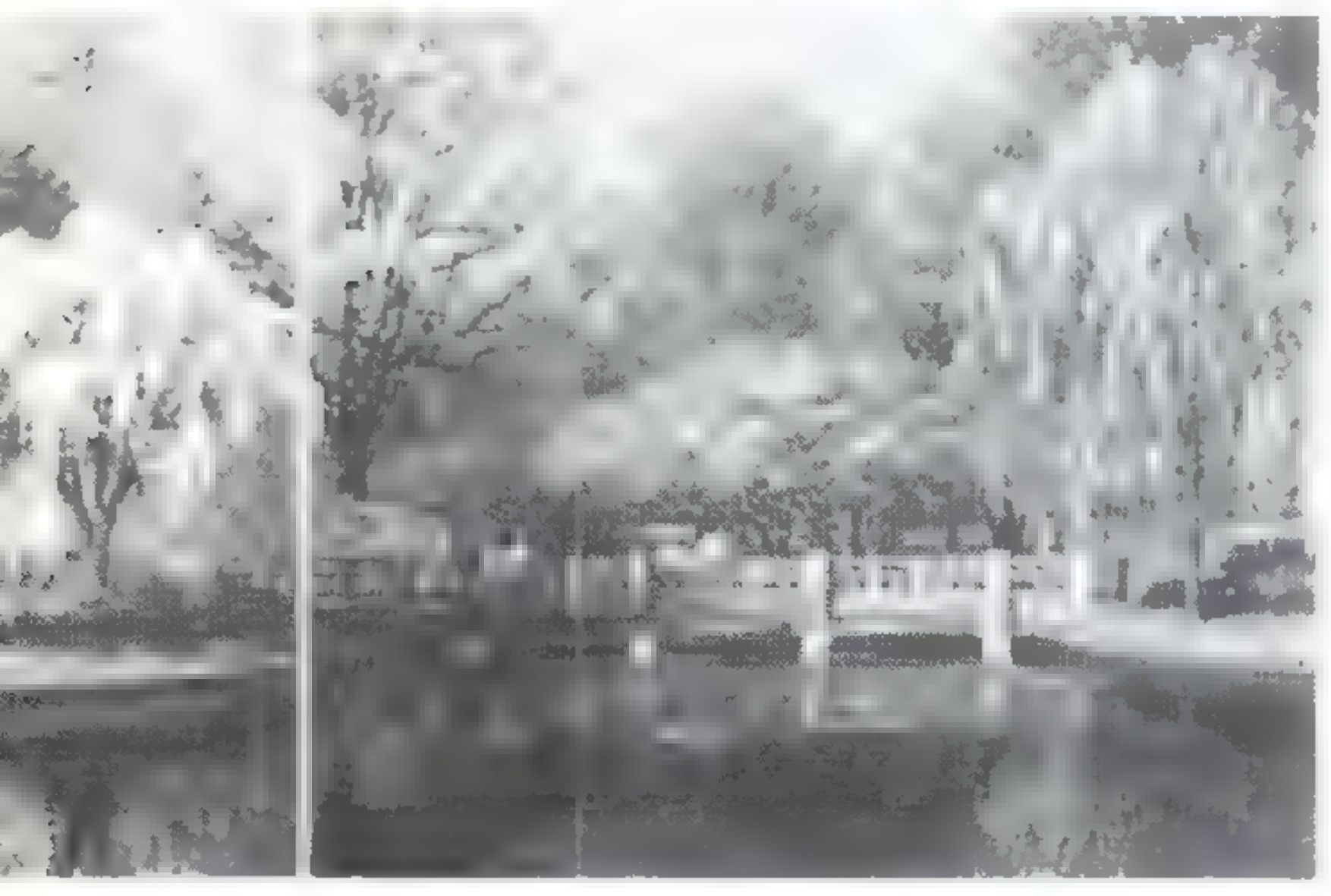
5:30 to 8:30 p.m., rain or shine. Take time to smell the roses with our annual salute to America's favorite flower. Master Gardeners will be on hand in the rose gardens to answer questions. Featuring demonstrations by the Rose Society of Greater St. Louis, a film in Shoenberg Auditorium, attendance drawings, and a long-stemmed rose to take home. Cash bar, live Dixieland music by Front Line. Free, for members only. Optional dinner buffet is available by advance reservation only, $20 per person. See the flyer mailed recently to all members, or call (314) 577-9500.

lecture. For more information call (314) 692-8984, or pick up a festival brochure at the Garden ticket counter.

May 25 Monday

Summer Hours Begin

The Garden will be open from 9 a.m. until 8 p.m. daily through Labor Day. Enjoy the beautiful summer evenings with a quiet stroll.



May 29 Friday

"Paintings of the Garden and Beyond"

9 a.m. to 8 p.m. daily through July 3, Monsanto Hall. Twenty-five oil paintings of the Garden, Shaw Arboretum, and area landscapes by St. Louis artist John Odell. Free with Garden admission.

June 3 Wednesday

Whitaker Jazz Festival: "New World Harmonica Jazz"

7:30 p.m., Cohen Amphitheater. See back cover.

June 6 Saturday

Chinese Culture Day

10 a.m. to 5 p.m., grounds. Enjoy the cultural heritage of China with the traditional lion dance, folk dancing, musical performances, food, children's games, demonstrations of bonsai, painting, and calligraphy by master craftsmen, tours of the Chinese garden, and more. Celebrate the 50th anniversary of our Dawn Redwoods, a prehistoric species rediscovered in China. Learn about the Flora of China project and see rare Chinese herbarium specimens in our collection. Free with Garden admission.

Members' Days

On Members' Days, Garden members receive free tram rides, additional discounts in the Garden Gate Shop, and 10% off in the Gardenview Restaurant.

May 12 Tuesday

"Some Things Old, Some Things New"

11 a.m., Shoenberg Auditorium. Chip Tynan, who heads the Garden's Horticulture Answer Service, is a walking, talking, one-man encyclopedia of know-how and down-to-earth advice for home gardeners. Whether you are a neophyte or an expert, you will delight in Chip's new ideas for home gardens and his common sense answers to some old gardening questions. Seating is on a first-come, first-served basis. Free, for members only.

June 5 Friday

Members' Musical Evening

5:30 to 9 p.m., outdoors on Spoehrer Plaza. Bring a picnic supper, blankets or lawn chairs, and enjoy a summer concert under the stars featuring the swinging sounds of the Gateway City Big Band. Concert begins at 7:30 p.m. Limited concert seating is available on a first-come, first-served basis. Free, for members only. Cash bar.

June 7 Sunday

Iris Society Show

Noon to 5 p.m., Orthwein Floral Display Hall. Free with Garden admission.

June 10 Wednesday

Whitaker Jazz Festival: "Quartet Tres Bien" Traditional Jazz

7:30 p.m., Cohen Amphitheater. See back cover.

June 17 Wednesday

Whitaker Jazz Festival: Vocalist Lisa Michel

7:30 p.m., Cohen Amphitheater. See back cover.

June 20 & 21
Saturday & Sunday

Mid-America Regional Lily Society Show

Noon to 8 p.m. Saturday, 9 a.m. to 5 p.m. Sunday, Orthwein Floral Display Hall. Free with Garden admission.

June 24 Wednesday

Whitaker Jazz Festival: "Pieces of 8"

7:30 p.m., Cohen Amphitheater. See back cover.

June 28 Sunday

West County Daylily Society Show and Sale

9 a.m. to 5 p.m. Orthwein Floral Display Hall and Beaumont Room. Free with Garden admission.

ARBORETUM EVENTS

June 5 — 7
Friday — Sunday

Native Plant Conference

At Powder Valley Nature Center in Kirkwood, co-sponsored by Shaw Arboretum and Missouri Department of Conservation. Advance registration is required and participation is limited to 250. For registration or information, call Shaw Arboretum at (314) 451-3512, or write P.O. Box 38, Gray Summit, Missouri 63039.

June 5 & 6
Friday & Saturday

Authors' Book Signings

Friday, 9 to 10 p.m.; Saturday 8 to 9 a.m. and noon to 1 p.m. at Powder Valley Nature Center. Meet nationally known nature writers attending the Native Plant Conference. Featuring Steven Foster, *Peterson's Guide to Medicinal Plants*; Sara Stein, *Noah's Garden: Restoring the Ecology of our Own Backyards*; and Guy Sternberg, *Landscaping with Medicinal Trees* (with Jim Wilson).

June 7 Sunday

Spring Wildflower Sale

9 a.m. to 4 p.m., Shaw Arboretum. Eleven local nurseries offer the widest selection of native plants in the Midwest at this popular annual event, including hundreds of varieties of wildflowers, ferns, trees, and shrubs for home landscaping in sun, shade, wet or dry soils. Missouri native seed will also be available. All plants sold are nursery-propagated, NOT wild-harvested. Proceeds benefit the Whitmire Wildflower Garden at the Arboretum. Enter off Robertsville Road at the west side of the Arboretum — watch for signs at the main gate. Free admission, and plenty of free parking. For more information, call Shaw Arboretum at (314) 451-3512.

Members

Friday, May 29, 1998

Impressions of Giverny

A Gala to Benefit the Missouri Botanical Garden

An elegant evening of dinner and dancing under the stars at the Milles Sculpture Garden and water lily pools, inspired by the gardens of Claude Monet at Giverny, France. Featuring the Mike Carney Orchestra of New York, with entertainment by The Poor People of Paris, fireworks choreographed to the music of France, and much, much more. Black tie, valet parking. $250 per person, patrons $500 per person, and tables of ten beginning at $5,000. Please call (314) 577-9495 for information and reservations.

Friday, May 8 – Mother's Day Luncheon

"A Mad Hatter's Party"

Wear your prettiest spring hat and enjoy a delightful afternoon with your mother and friends at the Garden's annual Mother's Day Luncheon. Held under the outdoor tent, featuring beautiful fashions by Dillards. $40 members, $50 non-members. Watch the mail for your special invitation, or call (314) 577-9500 by May 5 for reservations.

Saturday, May 9 – A Special GardenExpo "Kids' Corner" Event

"Making Spring Hats"

10 a.m. to 2 p.m. in the outdoor tent at the Ridgway Center. Create your own special hat with paper, ribbons, and dried flowers. For children ages 4 to 12. Sponsored by the Members' Board.

Thank You to Our Donors

Special thanks go to the following businesses for their generous donations of items for recent Members' Days:

Bayer Garden Shops
Chadfield Garden
Wild Birds Unlimited

Thanks also to the following donors of floral arrangements for Rose Evening:

Grimm & Gorly Florist
Two Raven Designs
Tom Carr Florist

Members Enjoy Free Benefits at Other Gardens

When you plan your next vacation, don't forget to take advantage of one of your membership benefits — free reciprocal admission at other botanical institutions around the country.

Call the Membership Office at (314) 577-9500, or stop by the Membership Services Desk at the Ridgway Center, to request a list of arboreta, botanical gardens, and conservatories that offer free reciprocal admission and additional benefits to members of the Missouri Botanical Garden. Published annually by the American Horticultural Society, the list includes dozens of beautiful places throughout the United States and Canada.

Missouri Garden Clubs Support the Garden

Officers of the Federated Garden Clubs of Missouri made a substantial gift to the Garden in February, 1998. "We are very grateful for the long-term friendship and support of this fine organization," said Patricia Arnold, director of development.

The Federated Garden Clubs of Missouri is part of the National Council of State Garden Clubs, which has its headquarters at the south end of the Garden on Magnolia Boulevard. Founded in 1929, the National Council is the largest organization of its kind in the world, with some 11,000 clubs in all 50 states and the District of Columbia. The organization "works to protect, preserve, and conserve the bounty and beauty of this earth's natural and human resources."

PHOTO BY TIM PARKER

Shown in the Linnean House are (from left): Mrs. R.L. (Kay) Schaefer, director of the East Central District; June Kummer, MBG trustee and past state president of the Federated Garden Clubs; Patricia Arnold; and Mrs. James A. (Sue) Breckenridge, MBG state chairman for the Federated Garden Clubs and member of the MBG Members' Board.

GARDEN GATE
SHOP

All proceeds from sales in the Garden Gate Shop benefit the Missouri Botanical Garden

The Dinosaurs Are Coming!

Visit the exhibit in the Climatron, which opens May 15, then see the exciting new educational toys in the Shop. Starting at $2.

New for Spring —

South African handmade chinaware in the shapes of flowers and leaves: $50 – $162.

Nature's Harvest all-natural organic fertilizer: $9.

Sun Shelf for plants, all sizes, starting at $15.

The Plant Buyer Recommends —

New plant kits for children, educational and entertaining: "Insect Eating Garden" (Venus Flytrap), "Citrus Man" (orange or lemon), "Dr. Aloe" (aloe vera), $7.50 each.

New and unusual gingers with outstanding foliage and exotic scented flowers, $38 -- $60.

Mother's Day May 10 & Fathers Day June 21

The Garden Gate Shop has a wonderful selection of special gifts for all moms and dads. We can also help you create custom gift baskets, and deliver plants or flowers for a nominal fee. Please call 577-5137 for assistance.

Upcoming Events — Members' Day May 12

"Some Things Old, Some Things New"

Members receive an additional five percent discount on all containers.

May 16 & 17

Earth Day Festival

Sustainable America, edited by Daniel Sitarz, Earthpress, $15.95.

For children: *Down to Earth*, by Michael J. Rosen, Harcourt Brace, $18.

Playing cards: "52 Ways to Make a Difference," and "52 Nature Activities," $7.25 each.

Environmentally friendly products: From ready-to-wear to household cleaners.

Rose Evening May 22

Visit the Shop for a tasting of Victorian Rose Tea

Two new titles launch Chronicle Books' exciting new gardening series, "A Passion for Roses," featuring the expertise of master rosarian Ray Reddell and page after page of showstopping roses: *All-America Roses* and *Miniature Roses*, both by Rayford Clayton Reddell with photographs by Saxon Holt, Chronicle Books, 1998, $14.95 each.

Members Day June 5

"Members' Musical Evening"

Members receive an additional five percent discount on the NEW "Music of the Spheres" large tuned wind chimes, $75 — $550.

June 6

Chinese Culture Day

Flora of China, Illustration Volume 17, MBG Press.

Chinese Herbs, by John D. Keys, $16.95.

Chinese Papercut Blank Notes, $3.50.

New MBG Videos

New releases in the "Practical Down To Earth Home Gardening" Series from Eden Group:

"Lawn Care," $19.99. MBG horticulturists Steve Cline and Walt Behrendt make lawn care understandable and successful.

"Perennials," $19.99. MBG horticulturists June Hutson and Glenn Kopp show you everything you need to know about low maintenance perennials.

New Book

Flora, by Nick Knight and Sandra Knapp

Schirmer/Mosel in collaboration with the Natural History Museum, London, 1997. $70.

A stunning collector's volume. Photographer Nick Knight spent 3-1/2 years creating these breathtakingly beautiful color portraits of dried plant specimens in the British Museum's herbarium.

Sandra Knapp, Curator of Middle American Plants at the Museum, wrote the lively and informative text for the large format color pictures. Dr. Knapp is a co-director of the Flora Mesoamericana project, with Prof. Mario Sousa of the National Autonomous University of Mexico and Dr. Gerrit Davidse of the Missouri Botanical Garden.

Neighborhood News

Special Discounts at Gringo Jones

During May and June, customers purchasing plants in the Garden Gate Shop can redeem their receipts at Gringo Jones at Shaw and Vandeventer, where they will receive a 20 percent discount on any clay garden container. In return, customers who purchase containers at Gringo Jones will receive a five percent discount on plants in the Garden Gate Shop. Stop in at Gringo Jones on the corner of Shaw and Vandeventer and see their wonderful selection!

CLIFF WILLIS

A NEW "ENVIRONMENT" IN THE GARDEN GATE SHOP
The Shop has been redesigned and refurbished! The new design features an open, spacious floor plan and easy access to all merchandise. The bright, contemporary displays and theme accents include a gazebo, a secretary for stationery, an armoire for gifts, a potting bench for gardening tools, a reading area in the book section, and much, much more. Stop in soon to see the Shop's exciting new look!

Teacher Randy Bracken in the greenhouse at North Tech

Off to a Good Start

Students Prepare Vegetables for Community Gardens

THIS SPRING, Gateway Greening, Inc. will distribute 16,000 vegetable seedlings to St. Louis community gardeners, thanks to help from high school students at North Technical High School in Florissant. The students, juniors and seniors from City and County schools, raise the vegetable seedlings as their Future Farmers of America service project.

Gateway, a community service organization affiliated with the Missouri Botanical Garden, helps to revitalize urban neighborhoods by assisting some 80 community gardens and beautification projects. Many of the gardens reclaim formerly vacant, abandoned properties and turn them into vegetable gardens that supplement family food budgets.

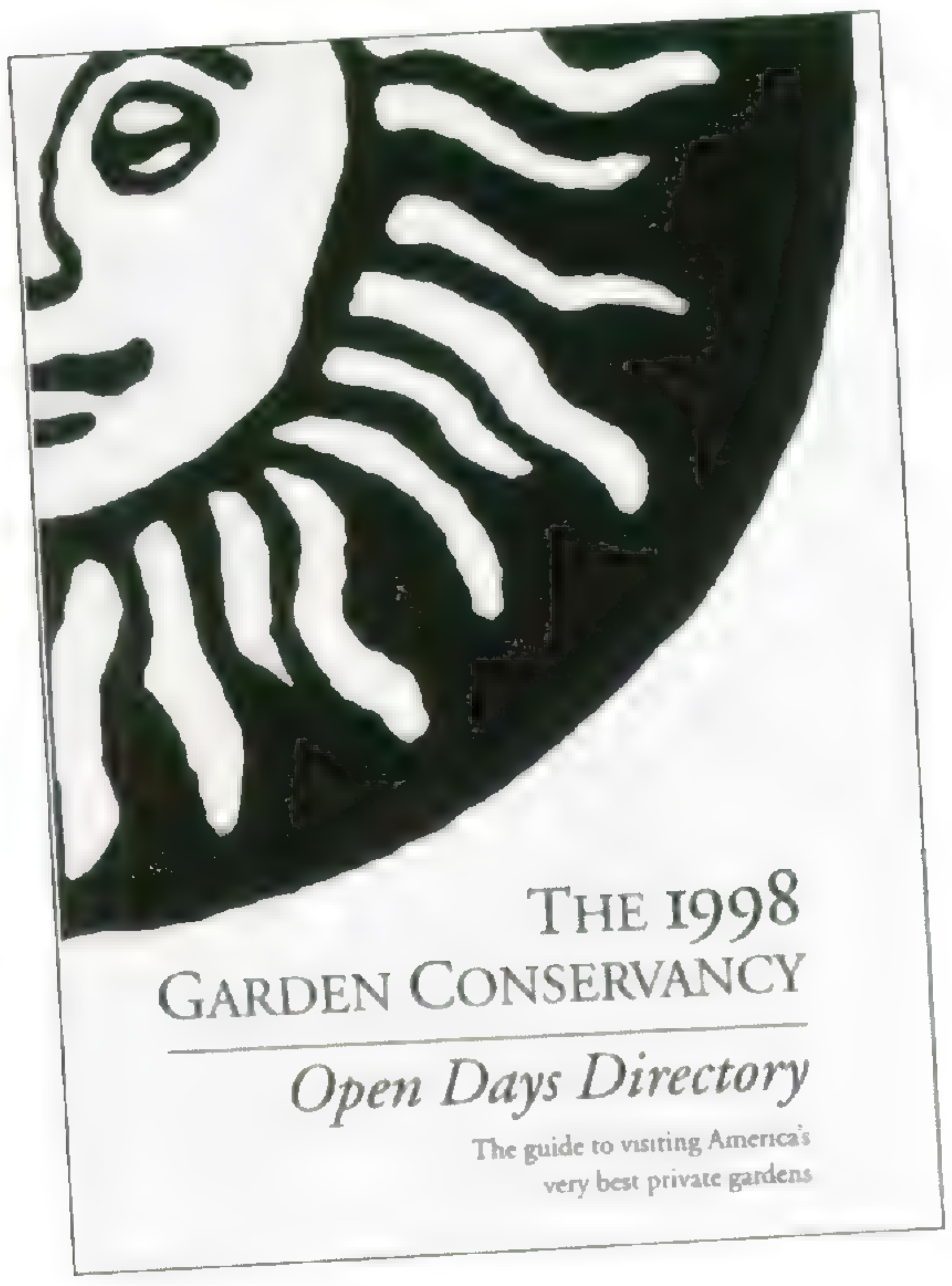
Seeds for the project are donated by area businesses. This year the North Tech students started 8,000 each of cool and warm season vegetables, including cabbages, collards, broccoli, brussels sprouts, lettuces, peppers, tomatoes, and eggplants. Choices are determined by Gateway volunteer Jim Durbin based on demand from the previous year, always including some new and heirloom varieties. Jim Durbin and Gateway volunteers Lew Lapides, John Wright, and Missy Ramey harden off the seedlings at their homes before the plants are distributed during April and May.

The program at North Tech is directed by Randy Bracken, the "propagation powerhouse" who started the horticulture program at North Tech 27 years ago. This is the fourth year Bracken and his students have assisted Gateway. Bracken stresses the importance of "giving back to the community" with his students, helping them to appreciate the rewards of helping others.

North Technical High School has two-year vocational programs in floral design/greenhouse operation and landscape maintenance/equipment operation. Facilities include eight greenhouses with 10,000 square feet under glass, and a 22-acre "outdoor classroom." Demand for the graduates is high with area employers, and several of Bracken's former students have earned junior college or college degrees in horticulture.

"Randy and his students are superstars!" said Kathy Bosin, program manager at Gateway. "Without the support of volunteers like them, it would be impossible for us to accomplish what we do. We can't thank them enough for their generosity."

For information about urban gardening opportunities with Gateway, or to volunteer, call (314) 577-9484. For more information about the North Technical High School vocational programs, call Randy Bracken at 839-6159.



Tour Private St. Louis Gardens on June 7

SEVEN of the most beautiful private gardens in the St. Louis area will be open to the public from 10 a.m. to 6 p.m. on June 7. They are among the 74 private Midwestern gardens and hundreds of others across the country which are included in *The 1998 Garden Conservancy Open Days Directory*. This is the only opportunity the public will have to visit these lovely gardens this year.

In addition to the seven St. Louis gardens open on June 7, the 1998 *Open Days Directory* includes 439 private gardens in 26 states, which are open to the public on select days from March through October, 1998. Every listing includes a garden description, travel directions, and the dates and times each location is open. The *Open Days Directory* is the exclusive source for this information. Many outstanding public gardens are listed as well.

To visit each garden, simply browse through the *Open Days Directory* and choose the locations you wish to visit. Visitors pay $4 admission at each garden, and no reservations are necessary. Discount coupons are available in books of six for $20, which provides one free visit.

The *Open Days Directory* is $10 per copy. It is available for sale in the Garden Gate Shop and at the Gifted Gardener, 8935 Manchester Road, St. Louis.

First published in 1995, the *Open Days Directory* is modeled on the "Yellow Book," which has made garden visiting all the rage in Great Britain. Last year more than 30,000 visits were made to gardens in the Open Days program.

It is estimated that more than two-thirds of America's great gardens have already been lost. The Garden Conservancy was formed in 1989 as a national not-for-profit organization dedicated to preserving America's exceptional private gardens for the public's enjoyment and education. The Conservancy is the first, and only, national organization dedicated to saving gardens as part of our natural and cultural heritage.

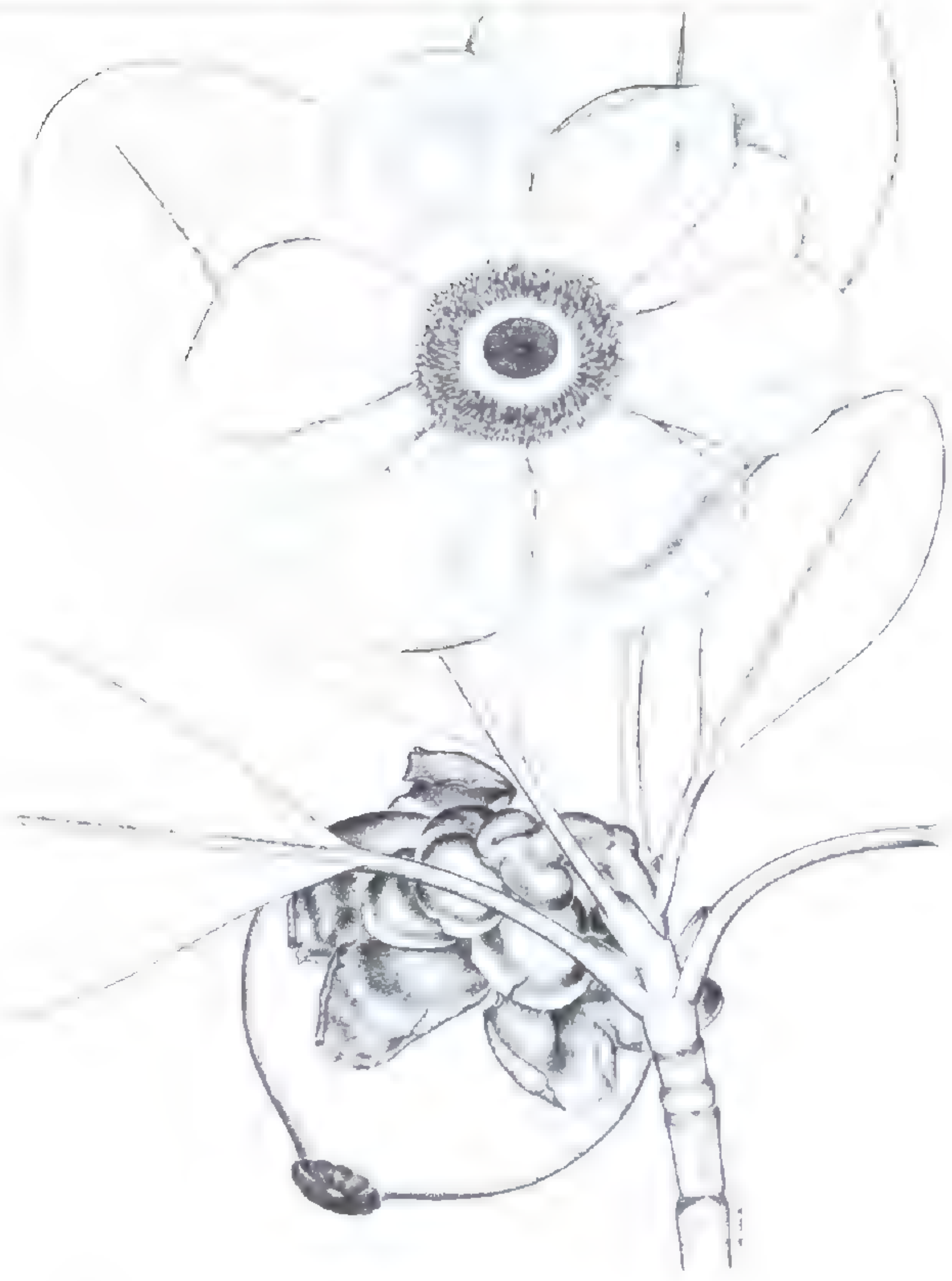
Flora of the Venezuelan Guayana Publishes Volume 4

THE FOURTH OF THE NINE-VOLUME SERIES *Flora of the Venezuelan Guayana* was published recently by Missouri Botanical Garden Press. The volume is richly illustrated with 621 exquisite line drawings by the Venezuelan artist Bruno Manara. Volume 4 treats 1,329 species from the seed plant families Caesalpiniaceae through Ericaceae.

Located in the southeastern half of Venezuela, the Venezuelan Guayana is the heart of what has been called "The Lost World." The area is dominated by massive table mountains, called tepuis, that tower over the surrounding rain forests and savannas. Much of the region is still in pristine condition. It is home to nearly 10,000 species of vascular plants, including many endemic species and genera.

Flora of the Venezuelan Guayana is the first full scientific account of the plants of the region. The project was initiated by the late renowned botanist and Garden curator Julian A. Steyermark. Paul E. Berry, Bruce K. Holst, and Kay Yatskievych continue the work, which is based at the Garden, with contributions from more than 180 botanists around the world.

> *"It represents the book you wish were available for all regions, look for in the library but can never find, or the one you dream of writing but never do."*
>
> — S. Bridgewater, *Edinburgh Journal of Botany*



***Clusia grandiflora*, an illustration from the new volume.**

CLIFF WILLIS

Dr. David Gates in front of the John S. Lehmann Building, for which he supervised the planning and fundraising.

David Gates Visits the Garden

DAVID M. GATES, director of the Garden from 1965 to 1971, visited for a week in April to work in the archives. Dr. Gates is professor emeritus of biology at the University of Michigan at Ann Arbor and retired director of the University of Michigan Biological Station.

Dr. Gates is credited with beginning the renaissance of the Missouri Botanical Garden during his tenure as director. He launched the first public capital fund drive in the Garden's history, a $3 million campaign to support construction of the John S. Lehmann Building. Dr. Gates also improved the Garden's buildings and grounds, maintenance, and administration, and worked to develop the graduate program.

Trained as a physicist, Dr. Gates grew up surrounded by biologists. His father was president of the Ecological Society of America and taught at the University of Michigan Biological Station. "I always understood the importance of a herbarium," Gates said. His own research on atmospheric physics led to investigations of plants and animals and their relationship to the environment.

Dr. Gates said, "I am very proud to have been involved with the Missouri Botanical Garden and to see what Peter Raven has achieved as director. The growth and strength of the research program is outstanding, and today I consider the Garden the finest institution of its kind in the world."

In 1990 Dr. Gates was awarded the Henry Shaw Medal, the Garden's highest honor.

CENTER FOR PLANT CONSERVATION

MacArthur Foundation Supports CPC in Hawai'i

THE CENTER FOR PLANT CONSERVATION (CPC) has received a three-year award from the John D. and Catherine T. MacArthur Foundation for general operating support of its Hawai'i program. Dr. Brien A. Meilleur, CPC president and executive director, said, "We are very grateful to the MacArthur Foundation for their ongoing support of our efforts to ensure the survival of the islands' fragile, irreplaceable flora."

The CPC Hawai'i office is located at the Harold L. Lyon Arboretum at the University of Hawai'i at Manoa. It coordinates conservation activities among the five Hawai'i CPC gardens and arboreta, including the Harold L. Lyon Arboretum, Honolulu Botanical Gardens, Waimea Arboretum and Botanical Garden on O'ahu, Amy B. H. Greenwell Ethnobotanical Garden on Hawai'i, and the National Tropical Botanical Garden on Kaua'i.

The CPC is the only organization dedicated exclusively to conserving the native plants of the United States. It has its national headquarters at the Missouri Botanical Garden.

Other Recent Awards to CPC

The CPC has received an award from The Forrest C. Lattner Foundation to provide $5,000 sponsorships for four endangered plants housed at two Florida botanical gardens. The gift challenges the Bok Tower Gardens in Lake Wales and Fairchild Tropical Garden in Miami to raise $20,000 in matching funds. The four sponsored plants are part of CPC's National Collection of Endangered Plants, a living collection of over 500 of the nation's rarest plants.

The Bay Foundation has made a grant to CPC to create an educational guide to the rare plants of the United States. The booklet will highlight stories from within CPC's National Collection of Endangered Plants and will emphasize our reliance on native plants, their place in our natural heritage, and what can be done to protect them. The booklet will also appear on CPC's World Wide Web homepage at <http://www.mobot.org/CPC>.

TIM PARKER

Shown at a recent staff meeting (from left): John Behrer, Marshall Crosby, Steve Wolff, Ron Liesner, Darman Williams. Gerrit Davidse is pictured below.

Behind the Scenes

Staff Celebrate Service Anniversaries

John W. Behrer — 20 years

The director of Shaw Arboretum, John Behrer grew up in Kirkwood and has been involved at the Arboretum most of his life. He started working there as a teenager in 1968, when he volunteered to drive the Wilderness Wagon. He joined the Arboretum staff full time in 1978, became superintendent in 1983, and was named director in 1996. John and his family live at the Arboretum.

Dr. Marshall R. Crosby — 30 years

Dr. Marshall Crosby, senior botanist and advisor to the director, came to the Garden in 1968 from Duke University, where he earned both his undergraduate and doctoral degrees. A bryologist, he has helped to make the Garden a world center for the study of mosses. Dr. Crosby has guided the Garden's scientific publications since 1969, serving as editor of the *Annals* for several years and founding the *Monographs in Systematic Botany* series, *Herbarium News*, and the journal *Novon*. He has been instrumental in developing TROPICOS, the Garden's botanical database, and planning for The Monsanto Center.

Dr. Gerrit Davidse — 25 years

Gerrit Davidse, John S. Lehmann Curator of Grasses, came to the Garden in 1972 after earning his Ph.D. at Iowa State University. He is a co-organizer of Flora Mesoamericana, a long-term international collaborative project to describe all the vascular plants growing from southern Mexico to the Panama Canal. Dr. Davidse is an expert in the Poaceae, or grass family, the world's most economically important group of plants.

Ronald L. Liesner — 25 years

Ron Liesner is that rare creature, a generalist in plant identification. He came to the Garden in 1973 with a B.S. in biology, and he can determine, literally at a glance, the correct family of unknown plant specimens so they can be passed on to the appropriate specialist for further study. In cases where there is no expert on the family, Liesner identifies the plant to species level. His skill is crucial to the functioning of the herbarium and the development of botanical knowledge.

Darman J. Williams — 20 years

After summer jobs in Tower Grove Park as a teenager, Darman Williams began working at the Garden in 1978 through a job placement program that gave young people on-the-job-training. Today Williams is a licenced horticulturalist in the state of Missouri. He works in the Intensive Garden displays between the Linnean House and the Climatron, performing the meticulous pruning and shaping of hedges and maintaining the floral displays. He enjoys working outdoors, and the creativity and variety of his job.

Stephen E. Wolff — 30 years

Steve Wolff, the Garden's production floriculturist, was hired by the Garden as a high school senior and continued to work here while earning his horticulture degree at Meramec Community College. He met his wife, a herbarium assistant, at the Garden, and they lived for a few years in a small house that used to stand on the grounds. Steve was trained by the Garden's great horticulturists, Paul Kohl, George Pring, and Lad Cutak, among many others, and he takes pleasure in sharing this heritage.

Gerrit Davidse (left) and Jose Sarukhan

DR. JOSÉ SARUKHÁN VISITS GARDEN — **Dr. José Sarukhán Kermez, (right), of the Universidad Nacional Autonomá de México (UNAM), addressed the Board of Trustees in April about the importance of the Missouri Botanical Garden's collaborative research efforts in Mesoamerica, which includes southern Mexico and Central America. He is shown here with Garden curator Dr. Gerrit Davidse, who coordinates the Flora Mesoamericana project together with colleagues at UNAM and the Natural History Museum in London. Dr. Sarukhán, who received the Henry Shaw Medal in 1991, is recognized as a world leader in botanical research, education, and conservation. He described the significance of Flora Mesoamericana, the largest regional flora ever produced in Spanish, as "a major and unique effort in the knowledge of the flora of the world." Dr. Saruknán described the project's benefits for the people and institutions of the region, and praised the Missouri Botanical Garden for its "international role in helping to strengthen the scientific capacity of institutions around the world."**

CLIFF WILLIS

Mrs. Robert P. Tschudy

JANE TSCHUDY was elected to the Board of Trustees in February, 1998, for a three-year term. Her interest in the Garden, however, began more than a decade ago, when she joined the Garden Members' Board.

Mrs. Tschudy served as president of the Members' Board in 1994-95, a term of exceptional achievement. Under her leadership, the Board took the lead in sponsoring the Members' Entry Court at the Kemper Center, challenging the membership to "Follow the Yellow Brick Road" by purchasing engraved bricks to be placed in the walkway. The effort was an outstanding success, with 95 percent of the goal raised in just one year. Also during 1994, the Board presented the delightful "Tour de France" benefit party, and in 1995 they organized the gala celebration "Year of the Chinese Garden."

Jane said, "The Garden Members' Board is an extraordinary group of volunteers. Everyone is so enthusiastic, caring, and dedicated, it is a pleasure to work with them. Their achievements are very impressive and exceptional."

Jane brings exceptional dedication of her own to her work at the Garden. Her interest was first inspired by her mother, the late Harriet Spoehrer. Mrs. Spoehrer grew up near the Garden and played here as a child; she became a Garden trustee and her generosity made possible many of the Garden's most beautiful features, including the Spoehrer Children's Garden, Spoehrer Plaza, and the renovation of the Climatron.

A native of St. Louis, Jane Tschudy is dedicated to her work on behalf of the community, particularly the children of St. Louis. She currently serves on the board of Mary Institute and Saint Louis Country Day School and Edgewood Children's Center Friends. She is a past board member of St. Louis Children's Hospital and St. Martha's Hall. She also has been an active volunteer for Girls, Inc., Meals on Wheels, and many other organizations.

Jane said, "It is very satisfying to work with the Garden, because it is a wonderful institution and does so much for our community. I think my mother would be proud to know that I am able to continue her involvement here."

Peter Raven said, "We are fortunate indeed to have Jane Tschudy join the Board of Trustees. Her caring and commitment as a Garden volunteer for the past decade have been extraordinary, and we look forward to continuing to benefit from her wonderful understanding of the Garden's mission."

In addition to her busy schedule, Jane loves gardening, walking and tennis. She and her husband Bob have two children, Linda Werner and Steve Tschudy, two grandchildren, and enjoy travelling.

TIM PARKER

BicycleWorks at the Garden

Members of the research staff are saving gasoline and auto emissions, not to mention getting in shape, by riding bicycles when they travel between the Garden grounds and The Monsanto Center. The Garden purchased the bikes from St. Louis BicycleWorks, a nearby community service organization that takes in used bicycles and teaches children to refurbish and sell them. BicycleWorks provides kids with an opportunity to learn leadership skills, good work habits, bike maintenance and safety, and to earn a bike by putting in hours at the shop. The kids also get opportunities to take bicycle trips and tours. For more information about BicycleWorks, call (314) 664-0828.

Shown at The Monsanto Center are (from left): Katie Herberg; Gavin Perry and Maura Brennan, board members of BicycleWorks; Joseph Herberg; Libby Carson, board member; Dr. Robert Magill, MBG director of research; and Mark Johnson.

Rose Gardens Win AARS Award

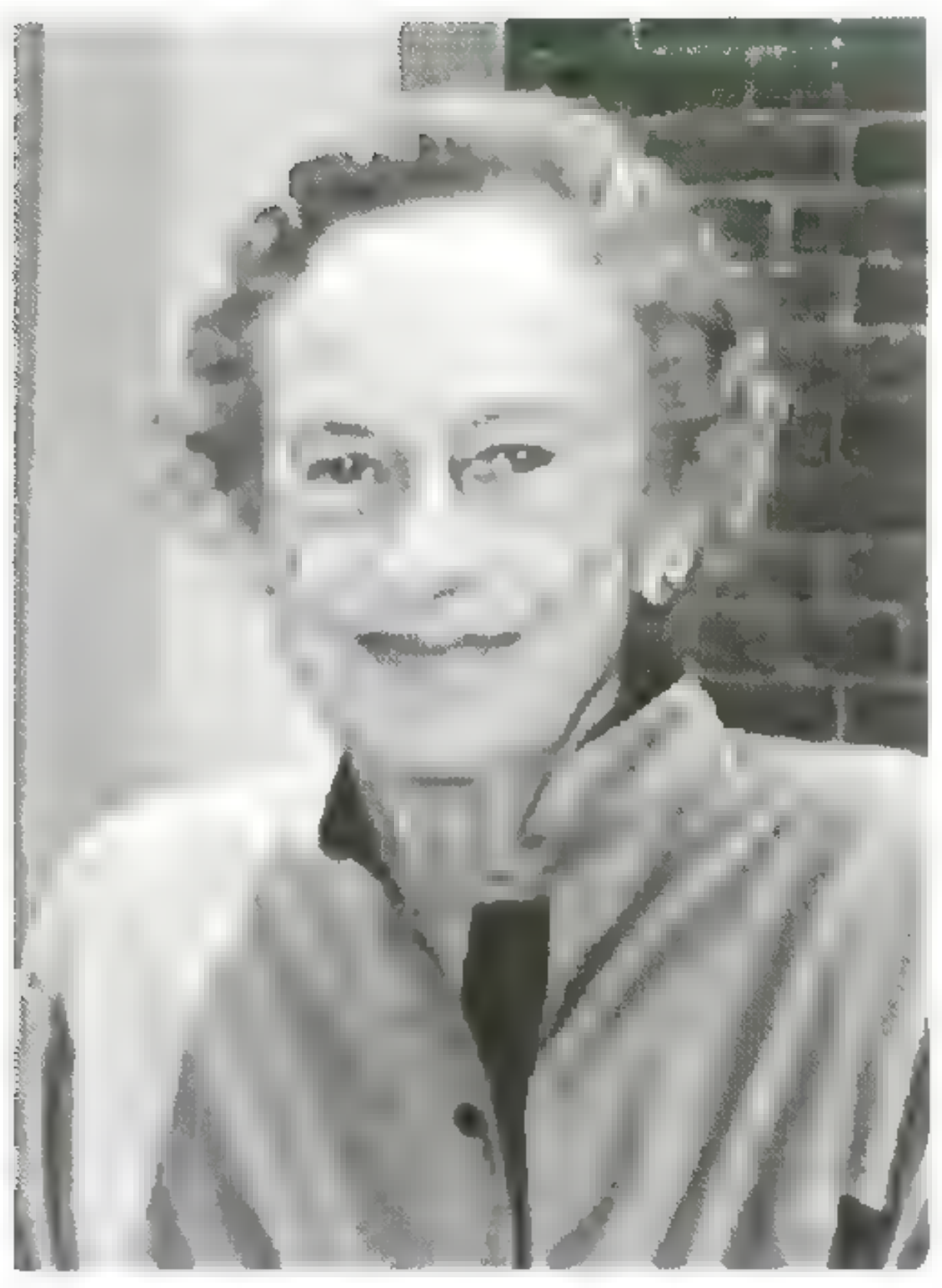
For the second consecutive year under supervision by Diane Breuckman, the current rosarian, the Garden has received the All-America Rose Selections Award for Outstanding Maintenance. The honor is bestowed annually to gardens surpassing AARS's high standards for rose care and presentation.

AARS public gardens have a minimum of 800 rose bushes and offer special displays of outstanding new varieties chosen by AARS for their beauty, novelty, and vigor. There are 130 AARS public gardens throughout the United States.

Editor Celebrates 10th Anniversary

Susan Wooleyhan Caine has been the editor of the Bulletin since 1988, but she began working on Garden publications in 1981 as a freelance graphic designer. As the manager of publications, her job includes writing, editing, designing and producing everything from the *Bulletin* to the *Annual Report*, the annual Calendar, brochures, flyers and invitations.

Susan grew up in Quincy, Illinois. A graduate of Smith College and the Radcliffe Publishing Procedures Course, she managed publications at Smith, worked at Harvard University Press, and was an art director at *St. Louis Magazine* before starting her freelance business. She enjoys creating illustrations for Garden events, including the logos for GardenExpo and Best of Missouri Market. "I have the best job at the Garden, because there is so much variety," she said. "I also get to know all the remarkable and talented people here and learn about what they do."



In Memoriam

Elizabeth E. Bascom

Members and staff were saddened by the death of Elizabeth "Betty" Bascom, a longtime friend of the Garden. Mrs. Bascom died February 9, 1998, after a brief illness. She was 82.

Mrs. Bascom's late husband, Joseph H. Bascom, was a Garden trustee for 23 years and served as president of the Board from 1973-75. The Bascoms shared a great love for the outdoors and were especially fond of Shaw Arboretum. Mr. Bascom served as chairman of the Arboretum committee.

Restoration of the Joseph Holliday Bascom Manor House at the Arboretum was supported by a naming gift made in his memory by Mrs. Bascom and their son and daughter, Charles E. Bascom and Mrs. John C. McPheeters (Connie). Mrs. Bascom also supported the Flora of North America project and the restoration of the Palm House in Tower Grove Park.

Betty Bascom was a native of Pittsburgh and attended Sarah Lawrence College. In addition to her service to the Missouri Botanical Garden and the Garden Club of St. Louis, she was an active member of the Board of Directors of the Women's Exchange. Patricia Arnold, director of development, said, "The generosity of Mrs. Bascom and her family to the Garden, and especially to the Arboretum, will enrich the lives of generations of St. Louisans. She was a good friend, and she will be deeply missed."

T. M. PARKER

Mr. Herr at a luncheon held in his honor, with Development volunteers Arden Fisher (left) and Joan Murphy.

1000th Tree Is Tagged

IN NOVEMBER, 1997, the Garden received a donation from Eugene W. Herr in memory of Walter Hansman. The gift will be recognized with a tag on a tree, the 1000th tree to receive a naming gift since the program began in 1982. The flowering crabapple, *Malus* 'Candied Apple', is planted near the entrance to the Chinese garden. Mr. Herr has previously given trees in memory of his wife and mother-in-law.

Arden Fisher, a volunteer in the Development Office, and her colleague Joan Murphy developed the program of naming features on the Garden's grounds in 1982. They assist donors interested in naming trees, shrubs, benches, and other items. With the tagging of the 1000th tree, selection is becoming limited but opportunities still exist, Arden said. For more information about these kinds of gifts, please call the Development Office, (314) 577-5120.

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Bricks donated to the Members' Entry Court at the William T. Kemper Center for Home Gardening between February 1, 1998, and March 31, 1998:

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Wayne Conwell
Carole A. Vohsen
Gerard Hannibal (Jerry)
Joan Hannibal
Friends of Gerard (Jerry) Hannibal
Marie Wimmer
Warren J. Wimmer, M.D.

ENGRAVED BRICKS

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Sisters and Brothers
Nieces and Nephews
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Christine McMahon and Family
Carol Dappert
Barbara Murch Ebeling
Linda Booth
Antoinette (Toni) Decker
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Douglas Ghertner
Candy and Steve Goggin
Lila Hail
Carmen Hoeber
Sally Levis
Connie and Ron Lohr
Linda Kelly Mueller
Shirly (Sunny) Pervil
Kristi Peterson
Genie Price
Betty & Curry Giles
Dorislee and Seymour Feinstein
Rosellen and Mark Feinstein
Sonia and Harold Hartman
Eleanor and Julius Schainblatt
Evelyn and Harvey Sherman
Marcia and Frank Spasser
Amie Lee Grabanski
Mrs. Antonio Del Monaco
Jon Kircher
John Thomas Kircher
Irwin Kugler
Pauline Kugler Depew
Pauline Kugler
Pauline Kugler Depew
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Charles L. Mayfield
Nancy A. Meyer
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Maureen Hodgman Schleicher
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Inside This Issue

3. **PARTNERSHIP CAMPAIGN IS COMPLETE**
Reaching the $37 million goal.

4. **MONSANTO CENTER IS DEDICATED**
Donors and friends gather to celebrate the completion of the campaign.

6. **CONFERENCE ON ECO-SYSTEMS**
Garden hosts "Managing Human-Dominated Ecosystems;" John Browne is awarded the Henry Shaw Medal.

8. **HOME GARDENING**
Pest alert: Gypsy moths and 13-year cicadas are coming.

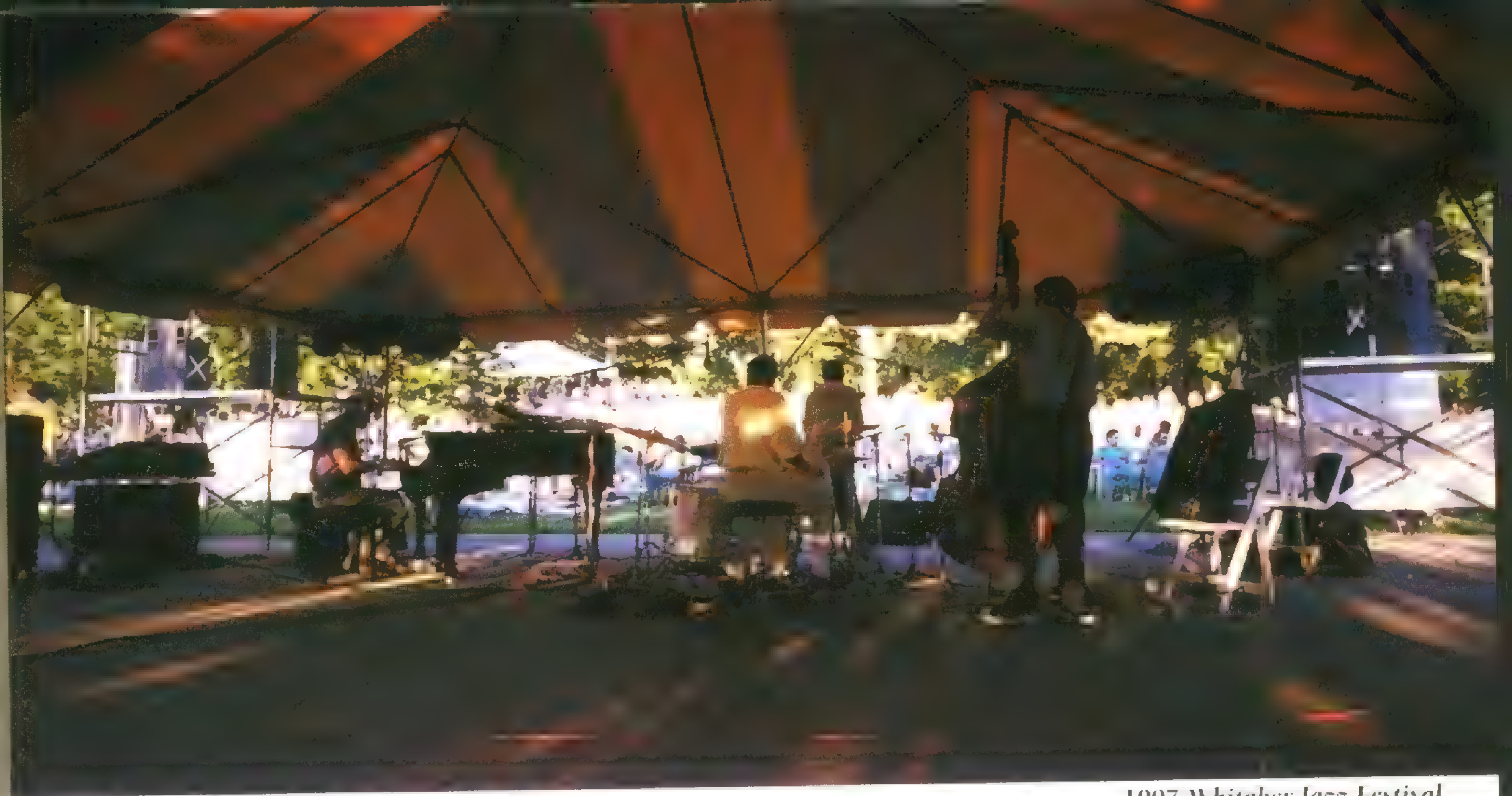
10. **ANTS AND DINOSAURS**
Exciting new exhibits in the Climatron and Brookings Interpretive Center are not for the faint of heart.

12. **CALENDAR OF EVENTS**
Rose Evening, GardenExpo, the annual Native Plant Sale, and more.

14. **NEWS OF THE MEMBERS**
"Impressions of Giverny" and more.

18. **STAFF ANNIVERSARIES**
Honoring 20, 25, and 30 years.

19. **TRUSTEE PROFILE**
Jane Tschudy joins the Board.



1997 Whitaker Jazz Festival

1998 WHITAKER jazz FESTIVAL

Bring a blanket and a picnic, and spend an evening outdoors with some of the best jazz musicians in the Midwest.

- Lawn seating
- Cash bar
- Box suppers are available; to order, call (314)577-9528.
- No alcoholic beverages or glass containers are allowed on Garden grounds.

June 3
New World Harmonica Jazz
Sandy Weltman and the Carolbeth Trio

June 10
Quartet Tres Bien
Traditional Jazz

June 17
Lisa Michel, Jazz Vocalist
Juneteenth Heritage Festival Evening

June 24
Pieces of 8
Vocal Octet, A Capella Jazz

July 1
Jimmy Jones and Friends
A "Cotton Club" Revue

July 8
Groove Merchants
Contemporary Jazz/Funk

Tickets are not required for Garden members — just show your membership card at the ticket counter. Non-members can pick up tickets two weeks in advance of each concert at the Garden ticket counter or at the University Center at Southern Illinois University at Edwardsville. Tickets will also be available at selected retail outlets — listen to WSIE Jazz Radio 88.7 FM for announcements of ticket locations, or pick up a flyer at the Garden.

The Whitaker Jazz Festival is made possible by the generosity of the Whitaker Foundation, which supports the arts in St. Louis to promote our common heritage while celebrating our diversity and encouraging the vitality of our community.

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SIX WEDNESDAYS

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MISSOURI BOTANICAL

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BULLETIN

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Missouri
Botanical
Garden

JULY / AUGUST
1998

VOLUME LXXXVI
NUMBER FOUR

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

IT IS STRIKING how many individuals and organizations come together here at the Garden to create a sense of vitality and excitement unmatched in our community. Just a few years ago, I wondered what it would be like to have a thousand volunteers; today that total is a reality. The men and women who donate their time to the Garden make a remarkable contribution, not just of their skills, but of their enthusiasm. Their spirit invigorates and renews us, and makes the Garden a true partner in the spirit of our community. On pages 14, 15, and 16 we highlight achievements and recent activities of some of our remarkable volunteers, but, in fact, every page of this issue is a showcase for the dedication of our volunteers, and we thank you, one and all.

Thanks are certainly in order for the volunteers who chaired our recent benefit gala, "Impressions of Giverny," featured on the next three pages. We had not held a gala for several years, and it lived up to the anticipation. It gives me great pleasure to recognize Patty and Bucky Bush, Mary Lee and Bob Hermann, Marilyn and Sam Fox, and Nora and Walter Stern for their wonderful leadership of this event, which did so much for the Garden and truly created an evening to remember.

With summer in full swing, see pages 8–10 for all the family fun in store at the Kemper Center for Home Gardening. While you are here, take time to enjoy the splendid exhibit of photographs on the Tongass, Alaska's rain forest, the dinosaurs in the Climatron, and so much more!

— Peter H. Raven, Director

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400
24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522
You will need a touch-tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401
Information on jobs and volunteer opportunities at the Garden is available with a touch-tone phone. Listings are updated bi-weekly, or see the Garden Website, below.

Horticultural Answer Service: 577-5143
9:00 a.m. to noon, Monday through Friday.

Master Composter Hotline: (314)577-9555
9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:
http://www.mobot.org/

Mailing Address:
Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours

9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Kemper Center for Home Gardening: 9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: open until 8 p.m., Tuesday through Saturday. Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop: 9 a.m. to 5 p.m. daily. Memorial Day through Labor Day: 9 a.m. to 6:30 p.m. daily, Friday and Saturday open until 7 p.m. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant: Buffet service during hours the grounds are open.

Tower Grove House: 9:45 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January. Admission is free for Garden members.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 40 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. Admission is free for Garden members. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House open 10 a.m. to 4 p.m. daily, closed on Mondays. For information call (314) 451-3512.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this Bulletin and mail to:

Bulletin
Missouri Botanical Garden
P.O. Box 299
St. Louis, MO 63166-0299

Your Name: ______________

Old Address:

Street ______________
City ______________
State ______ Zip ______

New Address:

Date effective: ______________
Street ______________
City ______________
State ______ Zip ______

On the Cover

Water lilies, a highlight of summer, recall the garden of Claude Monet at Giverny, France.
– Photo by Jack Jennings

Editor
Susan Woolevhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members. For information, please call (314) 577-5118

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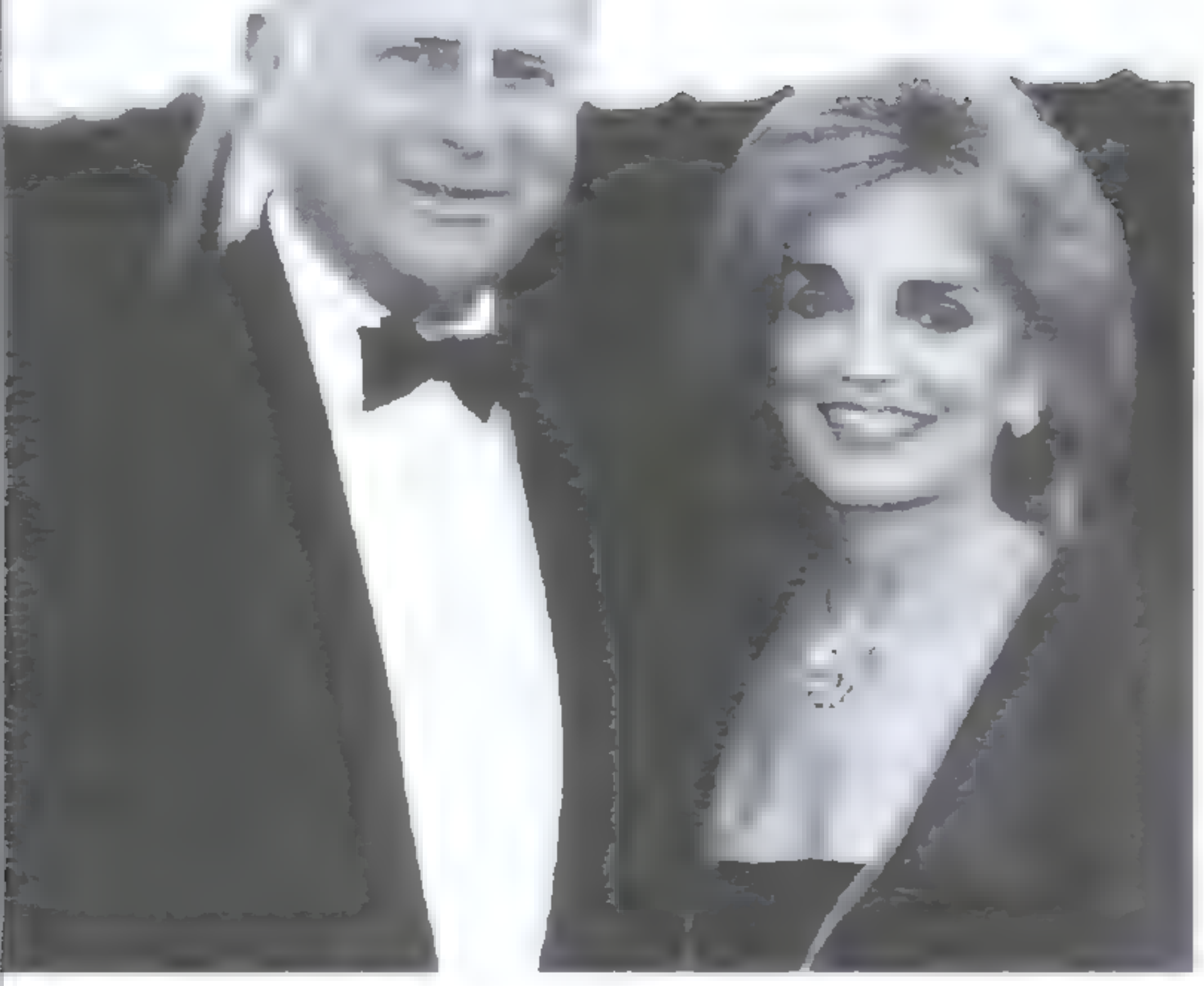
A GRAND GALA

Mr. and Mrs. William H.T. Bush, Honorary Chairs

Mr. and Mrs. Sam Fox, Co-Chairs



Mr. and Mrs. Robert R. Hermann, Co-Chairs

Mr. and Mrs. Walter Stern, Co-Chairs

Impressions of Giverny

Fireworks and festivities lit up the sky when 525 guests gathered for an evening of dinner and dancing under the stars. The event raised $225,000, which will benefit Tower Grove House and the Garden's educational outreach programs.

The Milles Sculpture Garden and the water lily pools were transformed into a glittering pavilion inspired by the garden of French Impressionist painter Claude Monet.

Mimes, jugglers, and songs by The Poor People of Paris entertained guests during cocktails, followed by a live auction and music by the famed Mike Carney Orchestra of New York, who played for dancing throughout the evening.

Our thanks to all the benefactors, patrons, committee members, and donors who made this wonderful evening a success.

Impressions of Giverny

A GRAND GALA

A magical pavilion floated over the water lily pools, framed by floral arches and illuminated by twinkling white lights. The Mike Carney Orchestra of New York played during dinner and dancing, and a sketch artist entertained during cocktails in the Gladney Rose Garden. Highlights included a live auction and a four-course French dinner, followed by spectacular fireworks for the grand finale.

Top: I.E. Millstone, Peter Raven, Anne Tao, Helen Levis, William Tao.

Right: Mark Wrighton, Risa Zwerling, E. Desmond Lee.

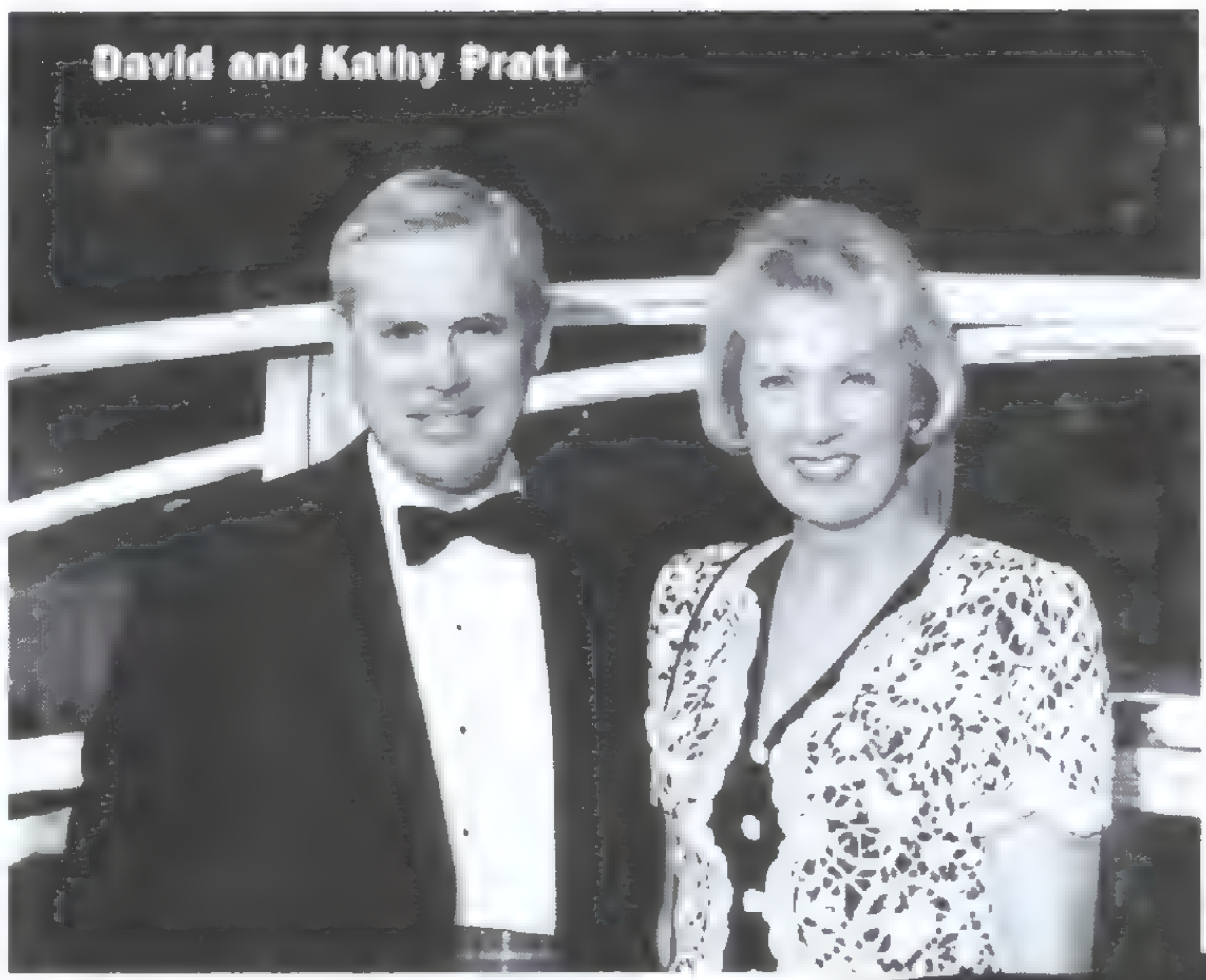
Below: Jinny Panton and Sam Goldstein.

David and Betty Farrell.

Patty Arnold, Arthur and Barbara Combs at the liv auction.

Right: Mr. and Mrs. John Maguire, Roma and Raymond Wittcoff.

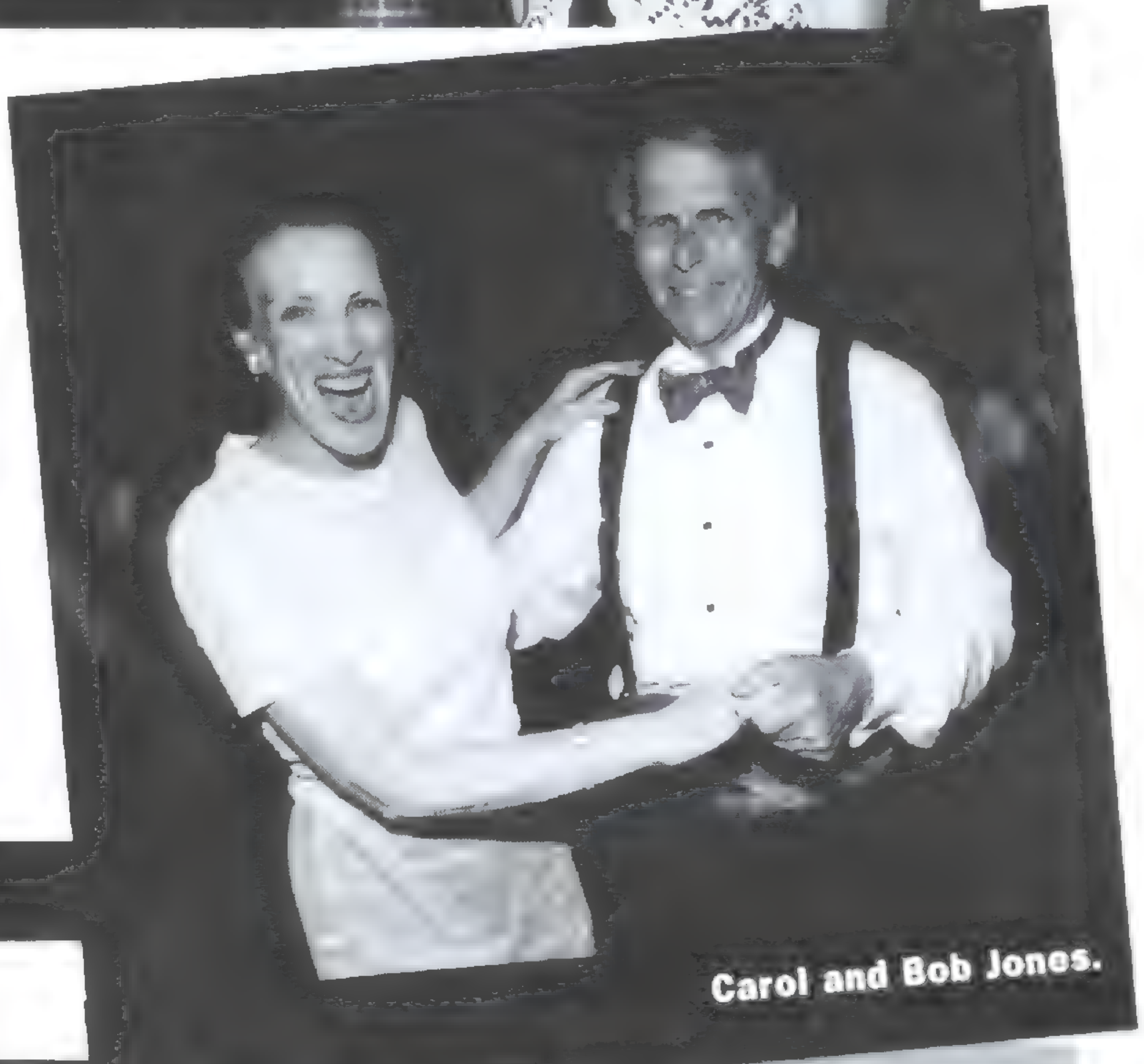
Below: Jane and Joe Gleason.



David and Kathy Pratt.

PHOTOS BY TIM FISHER

Donna and Tom Walker.



Carol and Bob Jones.

Lainey Lortz, Sally Driemeyer, Carol Squires, and Sue Breckenridge.

Bill Chapman and Margie May.

Debbie and Jack Thomas.

Frank and Pat Bick.

Ulrike and Tom Schlafly.

Laura and Bill Orthwein.

EcoNEWS at the Garden

TIM PARKER

ASTIC POT RECYCLING

Jason Delaney of the Garden's horticulture staff adds more plastic to the mountain in the Garden's parking lot.

Recycling a Plastic Mountain

PLASTIC consumes a huge amount of space in landfills, where it remains intact for decades. In May the Garden collected plastic gardening pots for recycling, and the response was incredible. Over 500 cubic yards of plastic items were donated, far exceeding expectations. The garden pots, trays, and flats were ground up, and the material will be used to manufacture 100 percent recycled plastic "lumber" ideal for outdoor construction projects such as decks or raised beds. You can see and learn more about plastic lumber in the Experimental Garden at the Kemper Center for Home Gardening.

This pilot project was supported by a grant from the St. Louis/Jefferson County Solid Waste District and co-sponsored by Shop-n-Save, the Suburban Journals, and KMOX Radio. Our thanks to all who participated!

Shown with their bikes are (from left): Lee Brown and John Farrington of the Facility Support staff, and security officer Jim Harris.

Bikers At Work

GARDEN STAFF are using bicycles these days to get around the grounds, reducing emissions from gas-powered carts. Security officers find their 21-speed mountain bikes allow them to respond to calls more quickly and quietly than ever before. Facility support staff use three-wheeled bicycles equipped with large baskets to transport supplies and collect trash. They also have a ten-speed two-wheeler they use to travel between the Garden's various facilities in the neighborhood. Staffers still need to use carts and vans sometimes, but they prefer the bikes. "It's a lot more fun," said John Farrington, facility support supervisor, "and it keeps you in shape!"

Critters in the Climatron

Because of a comprehensive program of integrated pest management and low-impact horticultural techniques, a wide variety of beneficial insects, reptiles, amphibians, and birds live in balance with plants in the Garden's conservatories. The environmentally friendly ecosystems support many species of colorful butterflies and birds, which can be seen flying about. One scarlet-rumped tanager, obtained through an exchange with the National Zoo, was raised by hand and often approaches visitors. A number of species of geckos, other lizards, and tropical frogs have also been introduced into the Climatron, but most are nocturnal and unlikely to be visible.

A rare glimpse of a shy tropical frog in the Climatron.

Reduce, Reuse, Recycle — Small Steps Pay Off

When you can't reduce the amount of packaging that comes your way, it pays to get creative.

- Meredith Thomsen of the Plant Records Department receives flat sheets of styrofoam with shipments of new signs. She passes them on to Brian LeDoux in Floral Display, who reuses the material to make props for flower shows.
- As for those ubiquitous styrofoam packing peanuts, Babs Wagner, who takes care of the orchid collection, gathers them from various departments and uses them for drainage in the bottoms of orchid pots.
- Horticulture staffers save outdated aluminum plant signs and tags and reuse them until they're worn out — then they recycle them. It adds up to a garbage can full of aluminum every year. Recycling saves natural resources and helps to pay for new signs.
- Rather than purchasing special envelopes for interoffice mail, all offices at the Garden reuse postmarked envelopes, often several times each.
- When it comes to recycling, small steps add up!

Missouri Envirothon Winners

In the Envirothon competition held at Shaw Arboretum, student teams spent six hours outdoors doing experiments, solving problems, and answering questions about ecology and environmental issues.

The first Missouri Envirothon competition for teams of students from area high schools was held at Shaw Arboretum in May, co-sponsored by the Garden and a number of state conservation agencies and organizations. Winners go on to a national competition in August with a chance to win $2,500 each in scholarships.

First place was awarded to the team from St. Charles West High School, with Horton Watkins High School of Ladue taking second, and a tie for third place between Fort Zumwalt North High School of O'Fallon and West Technology Vocational High School of Chesterfield.

Remembering Our Heritage

AS YOU CONSIDER the many gifts we can make to society, few are as cherished as the gift of our heritage. At the Missouri Botanical Garden, generations of St. Louisans enjoy nature's beauty while gaining an understanding of the wondrous diversity on our planet.

The Board of Trustees established the Heritage Society in 1986 to honor members and friends who have made bequests or other planned gift arrangements in support of the Garden. Planned gifts offer substantial benefits to donors while preserving and enhancing the Garden for generations to come. Among the many types of planned gifts are bequests by will, provisions in a living trust, beneficiary assignments for life insurance policies or retirement plans, charitable gift annuities, and other life income arrangements such as charitable remainder trusts.

A growing number of people are realizing significant advantages in their long-range estate and financial plans by including these thoughtful gifts. In appreciation, each year the Garden honors members of the Heritage Society at the annual Director's Associates dinner and extends special invitations to other events during the year.

If you are interested in learning more about the Heritage Society or how the Garden can assist you with your long-range plans, the Development Office will be happy to work with you or your advisors. Please call Patricia Arnold, director of development, at (314) 577-5120 for more information.

Free Financial Planning Seminar —
Estate Planning for the 21st Century

Wednesday, September 9, 1998
9 a.m. to noon, Shoenberg Auditorium

Members and their guests are invited to a free financial planning seminar and talk with experts in the field. The program will be presented by outstanding professionals:

Bruce Barnhardt, senior vice-president for investments, AG Edwards & Sons, Inc.

James Blase, Estate and Trust Department, Armstrong, Teasdale, Schlafly & Davis

Joan Malloy, personal financial planner and investment advisor, Arthur Andersen LLP

- **Tax benefits available through use of charitable estate planning techniques**
- **How trusts can facilitate management and distribution of property**
- **The will as a cornerstone of estate planning**
- **Eliminating capital gains tax on appreciated securities**
- **Benefits of charitable remainder trusts and simple gift annuities**

Admission to the seminar is free. Please make reservations by calling Judi Schraer at (314) 577-5120.

BUTTERFLY GARDENING

BUTTERFLIES DAZZLE and delight the eye and warm the heart. So it's sad to report that butterfly populations have been on the decline in recent decades. The loss of native vegetation to development and the use of pesticides are largely to blame.

Gardeners with a mind to help preserve butterfly populations will be richly rewarded with "up-close" opportunities to observe these lovely insects as they reveal secrets of nature, such as metamorphosis, mimicry, predator-prey relationships, and life cycles.

Attracting Butterflies

The first step in designing your butterfly garden is to determine the types of butterflies you want to attract. You can entice most butterflies to visit your garden by planting nectar plants. For a long-term relationship, however, you will need to supply the adults with the appropriate host larval plants on which to lay their eggs. While it is true that butterfly larvae are eating machines, they are very particular about the plants they eat and would rather starve than eat your prized tomatoes. (See box on next page.)

Location

While butterfly larvae pose little threat to most vegetables and ornamentals, it is a good idea to locate larval plants in an out-of-the-way area. Many larval plants, such as ironweed and Joe-pye weed, attain great heights and may be more suited to a naturalized area of the garden. Also, some larval host plants have weedy characteristics that are best located in a segregated area or in a container, as in the case of nettles. And let's face it, there is nothing particularly appealing about viewing a partially consumed dill plant. Nor do I care to be privy to the caterpillars while they eat.

Sun

Most butterflies, as well as the plants that attract them, need open, sunny areas in order to thrive. The plants will benefit by blooming longer, and the butterflies will have longer to mate and feed.

Butterflies are cold-blooded and depend on the warmth of the sun for energy. Placing light-colored, flat stones in the sun for basking will help butterflies warm their wings to 85–100° F, the temperature necessary to provide strength for flight. A basking area also allows you to get close enough for observation and photography.

Shelter

Your butterfly garden should be sheltered from the wind, as butterflies expend more energy flying in windy areas. Planting flowers with large, broad petals will also help butterflies conserve energy by providing "landing pads" where they can rest and sip nectar.

Water

While streams and ponds are an asset in a butterfly garden, providing water can be as simple as creating a small puddle. Some butterflies use puddles to obtain minerals and nutrients, such as salt. A puddle will also attract young males patrolling in search of receptive mates. This behavior often can be observed during the warmest hours of the day.

Nectar Plants

Planting clusters of the same species of colorful nectar-producing plants will be the most attractive to butterflies and gardeners alike. In general, the best nectar plants for butterflies provide a constant source of nectar and have flowering heads with small, multiple florets, such as lantanas and butterfly weed. When choosing nectar plants, it is best to stick with native species whenever possible. Many hybridized varieties have been bred to be showy, often at the expense of nectar production.

Food Plants

Choose species and cultivars that provide for successive seasons of bloom. Early and late season food sources are particularly valuable, as these are often in short supply. A mix of annuals and perennials works best. Annuals prolong the season of bloom, while perennials faithfully reappear year after year.

Don't forget to provide successive plantings of larval host plants. This is especially important for butterfly species, such as monarchs, which produce more than one or two broods each year.

Top Ten Plants

The top ten butterfly-attracting nectar plants include perennials and annuals. The perennials are black-eyed Susans, *Rudbeckia* spp., *Liatris* spp., *Coreopsis* spp., purple coneflowers, *Echinacea purpurea*, Joe-pye weed, *Eupatorium* spp., *Aster* spp., butterfly weed, *Asclepias tuberosa*, and butterfly bush, *Buddleia* spp. The annuals Egyptian star-cluster, *Pentas lanceolata*, lantanas, *Lantana camara*, and annual black-eyed Susans, *Rudbeckia* spp. round

New Monarch House in Children's Garden

Kids and adults will delight in this new display of the butterfly's life cycle in the Sphoerer Children's Garden. See and learn about monarch butterflies undergoing the four distinct stages that result in complete metamorphosis, which means "change of form": egg, larva or caterpillar, pupa, and adult.

out the list. Other good choices are milkweeds, *Asclepias* spp., ironweeds, *Vernonia* spp., pincushion flowers, *Scabiosa* spp., and rose verbena, *Verbena canadensis*.

Pest Control

Butterflies are insects, so pesticides that kill insect pests will also kill butterflies. The larvae are particularly susceptible to BT, *Bacillus thuringiensis*, a bacterial insecticide that is commonly used in vegetable gardens.

Fortunately, many of plants that are attractive food sources for butterflies are native to Missouri. Planting your butterfly garden with a rich diversity of these native species will greatly help reduce insect and disease problems.

If insects do become a problem, try using more environmentally friendly methods of pest control such as hand picking or hosing off insect pests. Better still, learn to develop tolerance for a chewed leaf or two.

More Information

To learn more about Missouri butterflies and the plants that attract them, visit the Garden and tour the Christopher Biraben Butterfly Meadow. In the Spoehrer Children's Garden, all four stages of the life cycle of the monarch butterfly can be viewed inside the new Monarch House. Or relax in the shade on a bench in the Birch Mahaffey Carpenter Butterfly Pavilion and marvel at the wonders of these winged beauties.

These displays are part of the 23 demonstration gardens at the William T. Kemper Center for Home Gardening. Visit the Center for more information on where to acquire plants for butterfly gardens.

—Katie Belisle-Iffrig
Horticulture Program Coordinator, Kemper Center for Home Gardening

Larval Plants for Butterflies

Swallowtail Family		
Black swallowtail	*Petroselinum crispum*	Parsley
	Anethum graveolens	Dill
	Pastinaca sativa	Parsnip
Spicebush swallowtail	*Lindera benzoin*	Spicebush
	Sassafrass albidum	Sassafrass
	Laurus nobilis	Bay tree
Zebra swallowtail	*Asimina triloba*	Pawpaw
Brush-footed Family		
Painted lady	*Centaurea cyanus*	Bachelor button
	Crisium spp.	Thistles
Red-spotted purple & Viceroy	*Salix* spp.	Willows
	Populus spp.	Poplars
	Prunus spp.	Cherries, Plums
White and Sulphur Butterfly Family		
Dogface butterfly	*Amorpha fruticosa*	False indigo
	Amorpha canescens	Lead plant
	Petalostemon spp.	Prairie clover
Snout Butterfly Family		
Common snout butterfly	*Celtis occidentalis*	Hackberry
Milkweed Butterfly Family		
Monarch	*Asclepias* spp.	Milkweeds

SATURDAYS THIS SUMMER
Fun for Kids and Grownups at the Kemper Center for Home Gardening

Work N' Tell Demonstrations

11 a.m. to noon, Summer Plant House
Master Gardeners present free hands-on demonstrations every Saturday morning. No reservations required.

July 4	*Drying Flowers from the Garden*
July 11	*Cut Flower Arrangements*
July 18	*Dried Herb Braids*
July 25	*Ikebana Floral Arrangements*

August is Tasters' Month —
Come in and sample produce fresh from the Garden every Saturday in August, 11 a.m. to noon. Tomatoes, cucumbers, and sweet peppers are just a few of the tasty treats in store.

Kids In Bloom

10 a.m. to 2 p.m. Drop in for free, fun-filled hands-on activities and make something to take home. Registration is not required.

July 4 *Seed Tambourines*
Celebrate the Fourth of July by making a festive tambourine filled with amazing little wonders — seeds!

July 11 *What's the Buzz?*
Learn all about nature's plant pollinators, honeybees, from real beekeepers. Sample honey sticks and make a "bee" for your garden.

July 18 *Dried Flower Ornaments*
Make a beautiful ornament from all natural dried plant materials, to keep or give away.

July 25 *Veggie-Print Gift Bags*
Create one-of-a-kind designs with vegetables and paint. Great for gifts or school lunches!

Directory of Regional Plant Societies

African Violet Council	*Vera Eaklor*	351-4365
American Orchid Society (Mid-America Regional Judging Committee)	David Brown	727-2385
Belleville Area Rose Society	Dennis Nelson http://users.accessus.net/~rosenut	(618) 233-4609
Bonsai Society of Greater St. Louis	*Bob Harris*	352-0817
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Ellis Evans*	843-3767
Federated Garden Clubs of Missouri, Inc.	*June M. Kummer*	821-5075
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Gary Dunlap*	789-3604
Greater St. Louis Daylily Society	*Ronald Bilchik*	991-5008
Greater St. Louis Iris Society	*Jim Loveland*	349-4977
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Metro East Herb Club	*Joyce Wells*	(618) 235-4853
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*William Walley*	382-7339
O'Fallon Iris Society	*Vince Italian*	739-3481
Orchid Society of Greater St. Louis	*Ann Rogers*	441-9502
Rose Society of Greater St. Louis	*Phil Schorr*	843-8493
St. Louis Herb Society	*Pat Leigh*	230-6213
St. Louis Horticultural Society	*Mindy Keyser*	421-6610 x236
St. Louis Hosta Society	*Mirko Bolanovich*	965-7471
St. Louis Water Garden Society	*Sue Blumm*	894-7609
West County Daylily Club	*Harald Boerstler*	865-0596

This directory is published twice a year, in the January and July issues of the *Bulletin*. To change your listing, please send a written notice by December 1 or June 1 to: Bulletin Editor, Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, or call (314) 577-5123.

LET THE SUNSHINE IN — Be sure to see the solar powered lawnmower in operation on the central lawn at the Kemper Center this summer (left). Displays nearby have more information on how to use this environmentally friendly technology in your backyard.

FOR THE BIRDS — Visit the Lang Bird Garden, where nesting pairs of purple martins have taken up residence in this unusual birdhouse made of natural gourds, which were grown last summer at the Kemper Center (left). Designed by the Purple Martin Conservation Association, the structure was built at the Garden with help from volunteer Don Dill. The purple martin colony at the Garden is vigorous and growing, and the birds' enthusiastic appetite for insects will be especially welcome this year when pest populations are high.

PEST ALERT — Japanese Beetles

The notoriously destructive Japanese beetle is a stocky, half-inch-long insect resembling the slightly larger June bugs that are commonly seen in area gardens every summer. Japanese beetles are far more colorful, however, with iridescent green bodies and coppery wing covers the color of a shiny penny. They feed on flowers, fruits, and foliage of more than 275 plant species, especially roses, grapes, birches, lindens, and crabapples.

Japanese beetles were first noticed in St. Louis during the 1930s. In recent years there has been a dramatic increase in their numbers throughout the metropolitan area. At the Garden last year, several hundred beetles were caught in traps placed in the Kemper Center gardens and near the rose gardens. More live insects were picked off plants by hand and destroyed.

Japanese beetles overwinter as partially grown grubs. They pupate in late spring, and adults begin to emerge in early summer. Numbers are highest during July and early August. Female beetles lay their eggs in the soil, with well-irrigated lawns being the preferred site. Young grubs feed extensively on grass roots until fall, them move down into the soil to pass the winter.

There is no single best control for Japanese beetles. Hand collecting is effective only where they are not too numerous. Traps are best used for monitoring adult presence rather than as control devices, as they attract many more beetles into the area than can be caught. Contact insecticides can be used to control feeding adults.

Grub control is best achieved in late summer after eggs hatch, using registered grub insecticides available at local garden centers. Milky spore disease, a biological control agent, works only on Japanese beetle grubs, requires two to three years to become effective, and works best only with high population densities. — *Chip Tynan, MBG Horticulturist*

"A Glacier and Icebergs at Tideline," by Robert Glenn Ketchum

"Cormorants Bask on Offshore Islands," by Robert Johnson

July 14 — August 30

The Tongass: Alaska's Magnificent Rain Forest

Smithsonian Institution Traveling Exhibition Service (SITES)
Curated by Robert Glenn Ketchum

Forty-two magnificent photographs by leading nature photographers capture the remarkable beauty of Alaska's Tongass, the largest national forest in the United States. This old-growth temperate rain forest of extraordinary complexity and richness teems with wildlife and is home to the last great populations of bald eagles, grizzly bears, and 1,000-year-old trees. The biological diversity of the Tongass rivals that of any location on the planet.

Vivid pictures explore the harmony of the Tongass's delicately balanced ecosystem, from its rugged Outer Coast and legendary Inner Passage, to its bogs, thundering waterfalls, glaciers-carved valleys, and ancient stands of trees. This is a fragment of the earth in its natural state of being — a treasure too precious to lose.

The exhibit will be on display in Monsanto Hall, 9 a.m. to 8 p.m. daily.

"A Humpback Whale, Breaching," by Art Wolfe

Shown at the Adlyne Freund Center (from left): Whitney Harris, Ann Sullins, vice-president and director of community relations for Commerce Bank, John Behrer, director of Shaw Arboretum, Jane Harris, and Peter Raven.

Renovations Are Complete at the Adlyne Freund Center

Renovations have been completed at the Adlyne Freund Education Center at Shaw Arboretum. At a luncheon on June 5, the Garden paid tribute to the Norman J. Stupp Foundation, Commerce Bank, Trustee, and to Mr. and Mrs. Whitney R. Harris for their generous support, which made the renovations possible. The Adlyne Freund Center was named in honor of Mrs. Harris's late mother, who helped the Garden to acquire the property in 1977.

"Jane and Whitney and the Stupp Foundation have been wonderful friends to the Garden and the Arboretum over the years," said Peter H. Raven. "Their support for this project will greatly enhance our ability to educate visitors of all ages about the wonders of the natural world."

The Adlyne Freund Center is used as a classroom facility for a wide variety of outdoor classes and activities. Its location near the prairie, wetland, and Meramec River make it ideal for education programs. The renovations included installation of a commercial kitchen, expanded restroom facilities, and a larger seating area, leaving the rustic appearance of the lodge unaltered. The Adlyne Freund Center can now serve as an integral part of a proposed overnight education facility at the Arboretum.

Calendar

July 1 Wednesday

Whitaker Jazz Festival: "Jimmy Jones and Friends"

7:30 p.m., Cohen Amphitheater. Bring a picnic or just feast on the sights and sounds of a "Cotton Club Revue." Lawn seating, cash bar, no alcoholic beverages or glass containers please. To order box suppers, call (314) 577-9528. Admission is free — Garden members simply show your membership card for admission; or listen to WSIE Jazz Radio 88.7 FM for announcements of ticket locations.

July 1 - 10

"Botanicals from the Ozarks"

10 a.m. to 4 p.m. daily, Tuesday through Saturday, Bascom Manor House, Shaw Arboretum. Watercolors by Missouri artist Linda Ellis. Free with Arboretum admission.

July 4 Saturday

Kids in Bloom: "Seed Tambourines"

10 a.m. to 2 p.m., Kemper Center. Free drop-in fun, plus "Drying Flowers from the Garden" demonstrations for adults. See page 9.

July 8 Wednesday

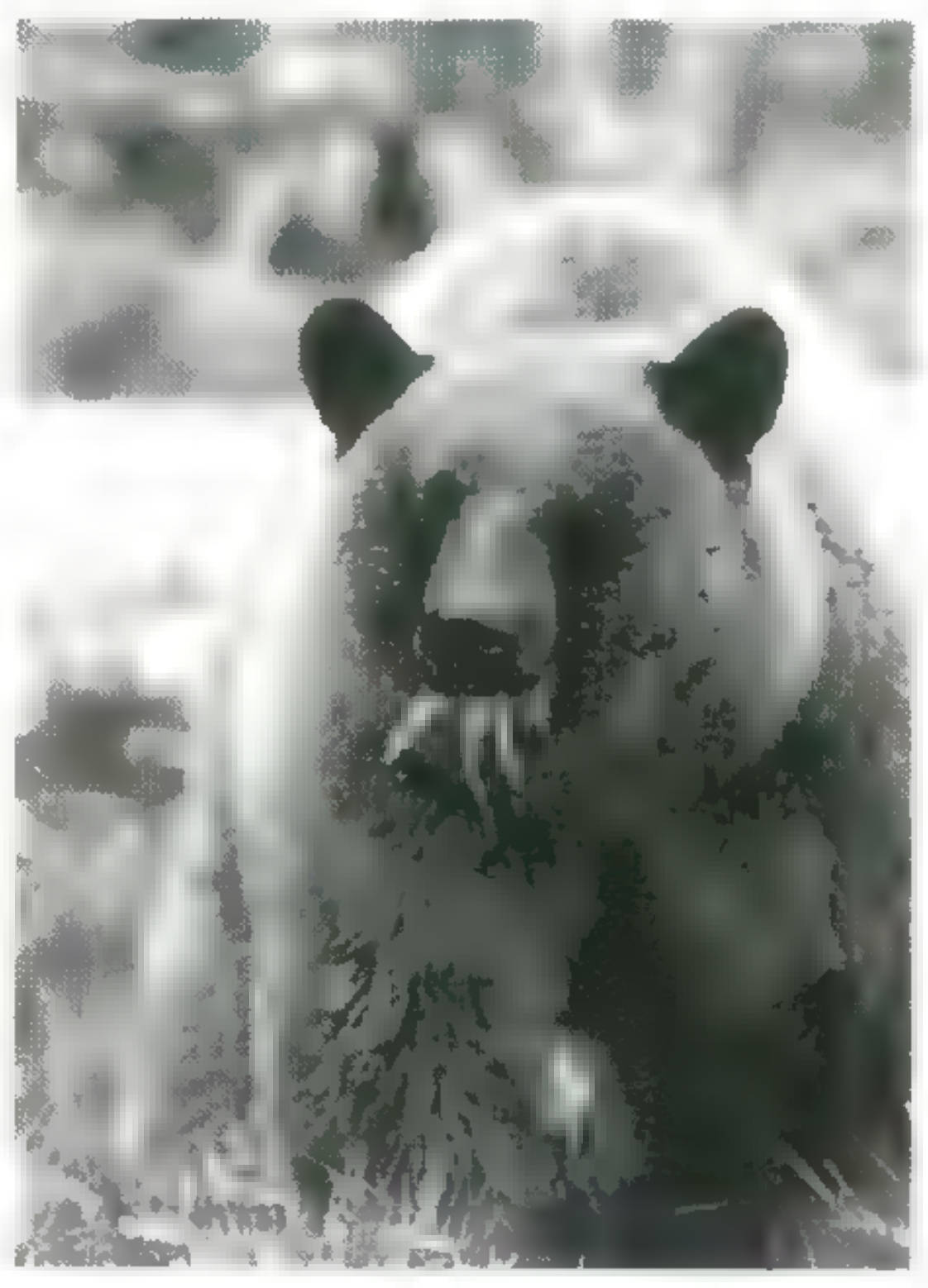
Whitaker Jazz Festival: "Groove Merchants"

7:30 p.m., Cohen Amphitheater. Concert of contemporary jazz/funk. See July 1 for details.

July 11 Saturday

Kids in Bloom: "What's the Buzz?"

10 a.m. to 2 p.m., Kemper Center. Free drop-in fun, plus "Cut Flower Arrangements" demonstrations for adults. See page 9.



"Grizzly Bear Foraging," by Art Wolfe.

July 14 Tuesday

"The Tongass: Alaska's Magnificent Rain Forest"

9 a.m. to 8 p.m. daily, Monsanto Hall. An exhibition of 42 spectacular color photographs by seven leading nature and wildlife photographers, including Robert Glenn Ketchum, Art Wolfe, Chris Burkett, and Robert Johnson. Curated by Robert Glenn Ketchum, organized by the Smithsonian Institution Traveling Exhibition Service (SITES). Free with Garden admission.

July 18 Saturday

Kids in Bloom: "Dried Flower Ornaments"

10 a.m. to 2 p.m., Kemper Center. Free drop-in fun activities, plus "Dried Herb Braids" demonstrations for adults. See page 9.

July 1 - 31

"Dinosaur Safari"

9 a.m. to 8 p.m., Climatron. More than 30 life-sized dinosaurs and flying reptiles are on the prowl in the Climatron rain forest, including a 30-foot-long *Maiasaura*, complete with a nest and eggs. Also see the exhibit of fossils in the adjacent Brookings Interpretive Center. Free with Garden admission.

July 25 Saturday — August 2 Sunday

Henry Shaw Cactus Society Show and Sale

The 53rd annual show is the largest of its kind in the Midwest. Over 1,500 species of cacti and succulents will be featured in Orthwein Floral Display Hall. July 25 (noon to 8 p.m.), July 26 (9 a.m. to 8 p.m.), July 27-31 (9 a.m. to 5 p.m.), August 1(9 a.m. to 8 p.m.), August 2 (9 a.m. to 5 p.m.) Free with Garden admission.

July 25 Saturday

Kids in Bloom: "Veggie Print Gift Bags"

10 a.m. to 2 p.m., Kemper Center. Free drop-in fun, plus "Ikebana Floral Arrangements" demonstrations for adults. See page 9.

July 26 Sunday

Henry Shaw's Birthday

1 to 5 p.m. Celebrate the 198th birthday of the Garden's founder. Festivities begin at the Tower Grove Park bandstand, where Henry Shaw will arrive in a horse-drawn carriage and lead a parade to the Garden, where guests will enjoy music, refreshments, a magician, tours of historic Tower Grove House, and fun for the whole family. Free with Garden admission.

July 26 Sunday

Iris Society Sale

11 a.m. until sold out, Beaumont Room. The Greater St. Louis Iris Society holds its annual sale of surplus rhizomes from the Garden. All proceeds benefit the iris displays at the Garden. Shop early for best selection!

August 1, 8, 15, 22, 29 Saturdays

Tasters' Month

11 a.m. to noon, Summer Plant House. Drop in and sample tomatoes, cucumbers, sweet peppers and more, fresh from the Kemper Center gardens. Free with Garden admission.

August 16 Sunday

Missouri Botanical Garden Daylily Society Sale

9 a.m. to 5 p.m., Orthwein Floral Display Hall. Free with Garden admission.

August 23 Sunday

Greater St. Louis Daylily Society Show and Sale

9 a.m. to 8 p.m., Orthwein Floral Display Hall. Free with Garden admission.

August 26 Wednesday

Fashion Show and Tea: "The Feel of Fall"

1 p.m., Ridgway Center. Tower Grove House Auxiliary sponsors show featuring beautiful fall fashions by Su-Ellen, followed by a tea. Please call 577-5150 for reservations by Tuesday, August 18. $25 per person.

September 5, 6 & 7
Labor Day Weekend

22nd Annual Japanese Festival

See back cover.

Members' Days

On Members' Days, Garden members receive free tram rides, additional discounts in the Garden Gate Shop, and 10% off in the Gardenview Restaurant.

July 21 Tuesday

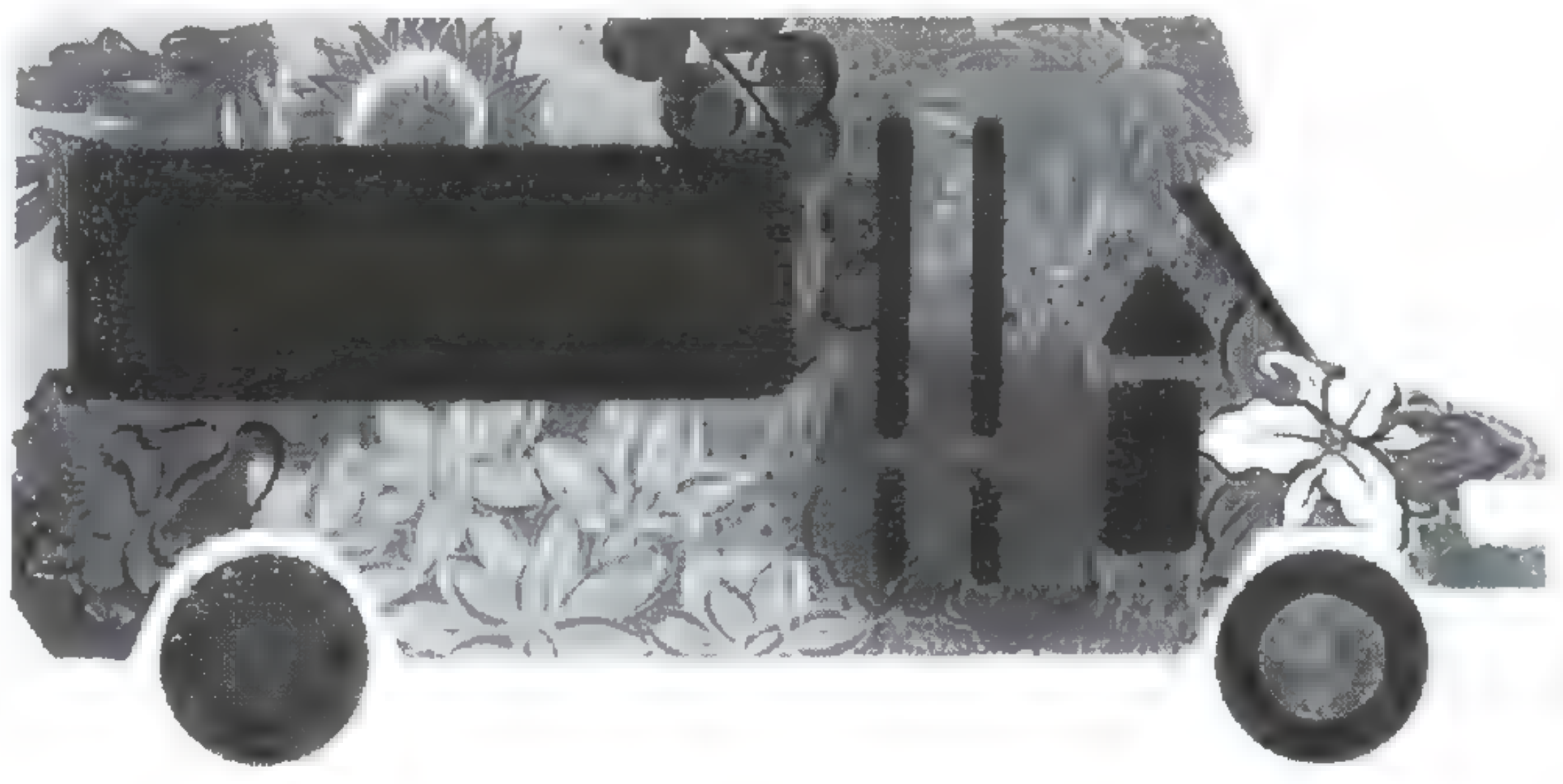
"Garden Photography"

11 a.m., Shoenberg Auditorium. Jack Jennings, photographer for the Garden's annual calendar, will present a slide program of work by the late, renowned photographer Ernst Haas, whose work was featured in Life Magazine. This show of magnificent photographs of flowers, trees, and landscapes was especially created for the Missouri Botanical Garden. Mr. Haas was born in Vienna and moved to New York in the 1950s. Following the program, Mr. Jennings will discuss the show and answer questions about nature photography. See the story about Mr. Jennings on page 15. Seating is on a first-come, first-served basis. Free, for members only.

August 19 Wednesday

"Medicinal Herbs"

11 a.m., Shoenberg Auditorium. Join herbalist Cathy Crandall for a delightful lecture program that blends art and science, folklore and technology with the traditional and contemporary uses of herbs. Ms. Crandall is a graduate of Southwest School of Botanical Medicine and owner of Mountain Magic, manufacturer of herbal extracts, teas, salves, and herb-seasoned olive oil. She is also employed as a plant research assistant for Dr. Walter H. Lewis, noted ethnobotanist, professor at Washington University, and former head of the Garden herbarium. Seating is on a first-come, first-served basis. Free, for members only.



Ride the New GARDEN EXPRESS

The "Bloomer Zoomer" Shuttle

Snazzy new shuttle buses painted with bright tropical flowers in vivid shades of pink, orange, red, and blue are running every 20 minutes between the Garden and the Central West End MetroLink station. St. Louis artist Cindy Wrobel designed and painted the colorful shuttles, which made their debut in June. A city-wide contest was held to name the new buses, and the winners will be announced in the next issue of the Bulletin. The project is sponsored by Arts in Transit, Bi-State's community partnership program, and the Garden.

The WORLD RECORD Bouquet

On April 26, 1998, the Garden broke into the Guinness Book of World Records for creating the world's largest bouquet of fresh flowers. Assembled on the lawn at the Kemper Center, the 60-foot-long bouquet was composed of 28,801 blooms. The previous record was a 56 feet, 11 inches long, with 27,713 flowers. A total of 373 people contributed flowers to the project, including visitors from 18 states, Canada, and Australia.

Vivian M. Bradford of St. Louis made the largest donation, bringing 62 flowers from her garden. She transported the blooms to the Garden on the Bi-State bus.

Members

TIM PARKER

Mother's Day Luncheon Special Thanks

Over 500 people attended the luncheon and fashion show on May 8. Special appreciation goes to Dillard's, Botanicals on the Park, Coca-Cola, the Gifted Gardener, Golf Outfitters Pro Shop, the Junior League of St. Louis, the Ritz-Carlton St. Louis, Silkworm's Garden, and V.J. Tea & Coffee Shop.

Special thanks go to the Mother's Day Luncheon committee (from left): Donna Walker, Glee Stanley, and Kathleen Dudley.

New Raven Society Members

The Garden welcomes two new members to the Peter H. Raven Society. Members of the Raven Society help to ensure the Garden's future by making significant unrestricted annual gifts for a minimum of three years. For more information on the Raven Society, please call the Development Office, (314) 577-5120.

Mr. and Mrs. Hugh Scott III

Mr. and Mrs. Ned Stanley

Members' Greenhouse Party and Sale

TIM PARKER

The success of the Greenhouse Party and Plant Sale is due to the hard work and organization of the committee (from left): Donna Walker, Holly Brigham, and Isabelle Morris.

On April 29, the Members' Board held its second annual greenhouse sale exclusively for Garden members, featuring choice and unusual plants from the Garden. This year the sale began with a special preview party the night before, offering "first pick" on the merchandise plus tours of the greenhouses. Guests met sculptor Robert Lee Walker, creator of the bronze animals in the Kemper Center gardens, and had an opportunity to purchase replicas of his bronze "Prairie Dog." All proceeds help to support the Horticulture Division.

CLIFF WILLIS

Committee members (seated, from left): Christine Meissner, Trish Zupon, Karen Clare, Claire Halloran, co-chair, and Debbie and Lucy Baldwin. Standing, from left: Jeff Schnettgoecke, Andy Dielmann, co-chair, and Rich George.

Give in to "Temptation at the Garden"

Young Friends of the Garden and Y98/FM Radio are sponsoring a party for ages 25 to 40 on July 18, 7:30 to 10:30 p.m. in the Kemper Center gardens. The evening will include twilight tram rides, music by the Mighty Big Band, refreshments and attendance prizes. Tickets are $25 per person or $40 per couple, and each guest may purchase a Garden membership with a $20 discount the night of the party. For more information please call (314) 577-9500.

Thank You to Our Donors

We extend warm appreciation to donors of goods and services who helped to make Rose Evening such a success:

All-American Rose Selections
Denver Wholesale Florist
Wood N' Trunks
Eden Group
Wayside Gardens

We also extend our special thanks to **St. Louis Trimming** for donating the supplies for the popular children's hat-making workshop at GardenExpo.

Past Presidents of the Members' Board

Mary Ella Alfring

TIM PARKER

MRS. JAMES ALFRING served as president of the Members' Board in 1966-57, when it was known as the Women's Executive Board of the Friends of the Garden. "There were only 10 or 12 of us on the board," she said, "and fewer than 3,000 members. We worked very hard to increase the membership."

Thirty years ago the Garden was a very different place. The Women's Executive Board held its meetings upstairs in what is now the Shoenberg Administration Building, joined by Dr. David Gates, the director at that time. In addition to working with the membership, the group was responsible for Tower Grove House and the Garden Gate Shop.

"The Shop was located upstairs in Tower Grove House," Mrs. Alfring recalled, "and to increase sales, we started having a display at each of the four annual flower shows, which were held in the old Floral Display Hall. We also worked to establish a restaurant at the Garden, as there wasn't one then."

Mrs Alfring first came to the Garden in the 1950s to take a gardening course. Her interest grew, and she was a volunteer with the Friends of the Garden for about 20 years, until she moved to Florida. As a lifetime member of the Board, she still attends meetings when she is in St. Louis.

"It is wonderful to visit the Garden today and see how it has developed," Mrs. Alfring said. "All of us on the Board had a strong sense of civic responsibility, and we worked hard to help the Garden grow. I am so pleased to see it looking so beautiful."

Mark Your Calendar — Save the Date!

7th Annual "Best of Missouri" Market

Saturday & Sunday, October 3 & 4, 9 a.m. to 5 p.m.
Saturday: Special Members' Preview 7 a.m. to 9 a.m.

Jack Jennings: Impressions of the Garden

TWENTY YEARS AGO, an amateur photographer named Jack Jennings attended the exhibition "Monet's Years at Giverny" at the St. Louis Art Museum. It was an inspiration. "I wanted to see if I could capture shimmering light and color with a camera the way Monet did with his brush," Jennings said. He came to the Garden to photograph the water lilies, and the rest, as they say, is history.

"I thought I might spend a few months taking pictures at the Garden," Jennings said, "but every time I came I saw something new." Enthralled by the panorama of changing seasons, Jennings kept returning, week after week, year after year, in rain, snow, fog, sun, at dawn and at dusk. "I always try to capture the essence of a place in my photographs," Jennings says. In his remarkable relationship with the Garden, he has certainly succeeded.

By 1981 he had amassed thousands of color photographs of the Garden and had an exhibition in the John S. Lehmann Building. "I arranged them in order of the seasons," he said, "and that suggested the idea of a calendar. Dr. Raven liked the idea, so we published the first one in 1982."

That first calendar, and the subsequent one in 1983, were small. In 1984, in honor of the Garden's 125th anniversary, the first large format calendar was produced, a design that has been used annually ever since.

From misty views of the Japanese garden at sunrise to an exquisite closeup of a blossom spangled with dew, Jack Jennings's beautiful photographs have come to symbolize the Missouri Botanical Garden. His pictures have appeared in national and regional magazines, including National Geographic, and are featured in books, brochures, guidebooks, and on the World Wide Web. Jennings also serves as a Garden ambassador to the community, giving unstintingly of his time with slide presentations, lectures, and seminars.

It is astonishing to realize that Jennings is completely self-taught and had never picked up a camera until he bought a simple Brownie Hawkeye to take snapshots of his first child. As his six children grew, so did his hobby, and in 1966 he purchased a Nikon and began pursuing his avocation seriously. He was living in New York at the time, and began photographing city scenes.

In 1978 Jennings returned to his native St. Louis, where he was director of sales and marketing of computer systems for McDonnell Douglas Automation Company (Mac Auto). He retired in 1989, but he has been busier than ever. He continues to visit the Garden 10-12 times each month and shoots several thousand color slides a year, working closely with Garden staff in all departments.

In his trademark cap, Jack Jennings is a familiar sight in the early mornings on the grounds. Sometimes, as he says, "It's just me and the ducks in the Japanese garden."

"Every time I come, I find something fresh and challenging to photograph," Jennings said. "I have had the privilege of seeing the Garden develop so many new and beautiful features over the past 20 years and watching them mature. The Japanese garden, for instance, looks very different today from when it was newly planted. The energy and love put into the Garden by the staff and volunteers makes it a truly wonderful place to work."

Peter Raven with 30-year volunteers (from left): Norma Hill, Shirley Durfee, Edna Dependahl, and Jean Crowder.

20-year volunteers (from left): Margaret Hartung, Carmi Messina, Katherine Lupo, Adrienne Biesterfeldt, Sheila Hoffmeister, Jeanne Haack, Sally Wilson, Pat Thomann.

10-Year volunteers (back row, standing from left): Judy Horan, Bertha French, Martin Meagher, Daniel Miller, Nancy Siefer, Sara Johnson, Mary Ellen Roedel, John Roedel, Jean Toenjes, William Cassilly. (Front row, seated from left): Cole Weber, Linda Meckfessel, Mary Chapman, Audrey Mathews. Not pictured: Mary Gumerman, Albert Hirson, Kitty Hoblitzelle, Donald Neal, Mary Reedy, Jill Schroer, Marge Triphaus, Linda Whitten.

Peter Raven with Jane Penhale, who has been a volunteer at the Garden for 40 years.

Honoring Our Volunteers

A luncheon at Spink Pavilion on April 30 honored those of the Garden's more than 1,000 volunteers who celebrated service anniversaries this spring. In 1997, 1,063 volunteers contributed 85,000 hours of service to the Garden, equalling 44 full-time staff positions.

Peter Raven paid tribute to the volunteers, saying, "Most of all, we value your zeal, your creativity, and your dedication. From plant mounting to planning a community garden, you bring a drive and a spirit to our volunteer program that is unmatched in this community, and we thank you." Volunteers honored were:

40 Years

Jane Penhale — *Herb Society, Boxwood Society*

30 Years

Jean Crowder — *Tower Grove House Auxiliary, Members' Board, Membership Services Desk*
Edna Dependahl — *Garden Guide*
Shirley Durfee — *Garden Guide*
Norma Hill — *Tower Grove House Guide, Membership Services Desk*

20 Years

Adrienne Biesterfeldt — *Garden Guide*
Jeanne Haack — *Garden Guide*
Margaret Hartung — *Research*
Sheila Hoffmeister — *Herb Society*
Katherine Lupo — *Garden Guide*
Carmi Messina — *Special projects*
Pat Thomann — *Cactus Society*
Sally Wilson — *Horticulture*

10 Years

William Cassilly, Mary Chapman, Bertha French, Mary Gumerman, Albert Hirson, Kitty Hoblitzelle, Judy Horan, Sara Johnson, Martin Meagher, Audrey Mathews, Linda Meckfessel, Daniel Miller, Donald Neal, Mary Reedy, John Roedel, Mary Ellen Roedel, Jill Schroer, Nancy Seifer, Jean Toenjes, Marge Triphaus, Cole Weber, Linda Whitten.

GARDEN GATE
SHOP

TIM PARKER

GATE SHOP PREMIERE — On Big Band Night, June 5, members were entertained at a special premiere of the beautifully redesigned interior of the Garden Gate Shop. The fresh contemporary decor and attractive new displays are a treat for the eye. Stop in soon and see for yourself!

All proceeds from sales in the Garden Gate Shop benefit the Missouri Botanical Garden

Members' Day July 21

Garden Photography

Members receive an extra five percent discount on film, cameras, and photographic prints.

Members' Day August 19

Medicinal Herbs

Members receive an extra five percent discount on herbs.

Featured for Summer —
The Tongass: Alaska's Vanishing Rain Forest, by Robert Glenn Ketchum. Book by Aperture, $29.95; video, $20.

Dinosaurs!
See "Dinosaur Safari" in the Climatron, then find special gifts in the Shop:

- Amber jewelry, starting at $18
- Prehistoric Fossil Collection, 12 different identified species in one package, $9
- Official Dinosaur Safari T-shirt, $12 kids, $14 adults
- Dino ties for Dad, $26

Special Summer Gifts

- Crabtree & Evelyn's Gardener's Care Line — After Work Scrub Grains or Skin Remedy with Lavender Oil, $9.50 each
- Floating flower candles — Sunflowers, daisies, cornflowers, and roses, two for $9.50. Water lilies, $9 each.
- Garden incense — spices/wood, citrus/citronella, leaves/fruit fragrances, ten sticks, $27

New in the Shop

- Chocó baskets of the Darién — From one of the world's largest unspoiled rain forests on the border of Panama and Colombia come baskets handmade by the Embera and Wounaan tribes. Made with palm fibers and dyed with colorful plant extracts, bark, and mud, these baskets provide sustainable income for the people of this remote area. From $30.
- Plant press field kits for the amateur botanist, starting at $6.50
- Sprout-About — Learn about seeds and germination from a real, live pet plant, $2.75

July & August

Seed Sale

During July and August, all seed envelopes are 30 percent off, for a total discount of 40 percent to Garden members.

Succulents and Cacti

- A terrific selection includes desert roses, Madagascar palms, and more, from $9
- Handpainted cactus pots, $17–22.50

Related Books —
Euphorbias, now in paperback from Timber Press, $19.95

Cacti, The New Plant Library from Lorenz Books, $9.95

The Complete Book of Cacti and Succulents from DK Publishing, $19.95

New from MBG Press

John Charles Fremont: Botanical Explorer, by Stan Welsh, illustrated, $49.95

Flora of China, Volume 18: Scrophulariaceae through Gesneriaceae, $85. Co-published with Science Press, Beijing.

GATEWAY GREENING – Rooting Communities Together

Great Garden Contest TOUR

July 11, 1998, 9:00 a.m. and 4:00 p.m. $25 per person, to benefit Gateway Greening's community gardens and greening projects. Call 577-9484 for reservations and details. Reservations are limited, so call early!

Featuring the winning gardens from the Great Garden Contest, sponsored by Gateway Greening, Missouri Botanical Garden, St. Louis Post Dispatch, and KTRS 550 AM. Two of Gateway Greening's community gardens will be featured on the tour, in addition to individual gardens all over the St. Louis area. A closed plant sale will be held at one of the sites.

Botanical Checklists

A Snapshot of What Grows Where

FOR CENTURIES, botanists have made lists of plants found in a particular area. Some of the earliest lists were prepared by royal gardeners, often to satisfy their monarch's pride of possession. Today, botanists use computerized databases to prepare complex lists of plants for an entire country, providing an invaluable scientific resource.

These lists, called checklists or catalogs, are like snapshots — they capture what botanists know at a particular moment about the plants of a particular region. A modern checklist includes scientific names and basic information about species and where they are found.

Garden scientists are racing to find out what plants grow in remote corners of the world while there's still time.

A checklist doesn't describe plants in detail, but it is the most effective way to measure the total diversity of plants in a given area. It is a basic tool, resembling a phone book and about the same size, that can be compiled in a few years, while a flora may take several decades. Moreover, by the time the last volume of a flora is completed, information in the earlier volumes may already be outdated. As the world's forests continue to disappear at a rapid pace, checklists are increasingly important for recording what grows in a region while there's still time.

Checklists are used by botanists, ecologists, and other scientists, conservation organizations, and government policymakers. For example, the Garden's checklists for Peru and Ecuador have been used to identify biological "hot spots," areas where plants are in danger of disappearing or that show great diversity. In addition to scientific data, checklists are a quick guide to the latest publications, and its list of contributors and reviewers is a "who's who" of botanists.

Worldwide Collaborations

Garden scientists are working hard to catalog the plants of many regions around the world. Checklist information can be viewed on the Garden's Website for the plants of Panama, Mesoamerica (Central America, including southernmost Mexico), China, and Peru. Upcoming Garden checklists nearing publication include a catalog for Ecuador and a world checklist of mosses.

The Garden has participated in a checklist for Argentina, produced by the Darwinion Institute of Botany in Buenos Aires, and will take part in a two projected checklist projects, one for Bolivia and one for the Southern Cone of South America, which includes Argentina, Chile, Uruguay, Paraguay, and southern Brazil.

Ecuador

Dr. Peter Møller Jørgensen of the Garden's research staff is about to see nearly six years of hard work come to fruition with the publication of the Catalogue of the Vascular Plants of Ecuador. There is no complete flora for Ecuador, one of the biologically richest countries in the world, so the Garden's checklist will provide the only comprehensive botanical reference for the region, with information on some 15,500 species of plants.

The Ecuador catalog is a complex international collaboration among four institutions, the Garden, Aarhus University in Denmark, the Catholic University of Ecuador, and the National Herbarium of Ecuador, involving the efforts of 236 botanists who are specialists in particular plant families.

Patterned after the successful model of the Garden's Peru checklist, it gives the accepted Latin name for each plant species, the author who first published that name and references, synonyms, its growth habit (tree, shrub, vine, etc.), whether it is endemic (found nowhere else), native, cultivated, or introduced. The geographic region, provinces, and altitude where it is found are listed, and a voucher, or herbarium specimen of the plant, is cited, along with a list of the herbaria where the voucher is on deposit. At the Garden, all information is keyed into the TROPICOS database, and every piece of data is reviewed and corrected as required.

Computer Power

A computerized checklist has many advantages. It can be updated quickly to include new discoveries, and it can rapidly manipulate data on thousands of species to provide useful comparisons, totals, and statistical analyses. As a result, today botanists can provide specific answers to many questions that could only be estimated before.

Printed checklists remain valuable. Internet technology is not yet available on every desktop in developing countries, and Internet connections, if they exist, may be slow. Most of the catalogs in which the Garden participates will appear in print as well as on-line.

What a checklist may lose in precision, it gains in speed, an important consideration in the race to find out what plants are in the forests before the forests are gone. Publishing a checklist will not halt the destruction of biodiversity, but it is certain that without knowledge of what may be lost, there is no defense against shortsighted exploitation or misuse of the world's plant resources.

— Kathryn Hurlbert,
MBG Research Division

Garden Recognized by Paraguay

In 1997 the Garden's cooperative program of botanical research and training in Paraguay was declared to be of national interest in an official resolution from the Subsecretary of Natural Resources and the Environment. The Garden is working with the National Biological Inventory, an agency of the Paraguayan Ministry of Agriculture and Livestock.

The Garden's links to Paraguay began in 1980, when Dr. Peter H. Raven helped to establish the National Biological Inventory. The Garden has continued to assist the botanical community in Paraguay to survey the country's plant resources and train professional botanists. Garden curator Dr. Elsa Zardini, who is stationed in Asunción, coordinates the Garden's work in Paraguay.

Students in the Hewlett Program investigated natural communities at Litzsinger Road Ecology Center.

Washington University Students Investigate Environmental Issues at the Garden

STUDENTS enrolled in the two-year Hewlett Program for Environmental Studies at Washington University participated in a three-week intersession course at the Garden this summer. Garden staff presented lectures and workshops on botanical research, use of the herbarium and library, field study techniques, prairie communities, rare plants, biodiversity, and identification of plants and plant groups. Activities were conducted at the Garden, Litzsinger Road Ecology Center, and Shaw Arboretum. The Hewlett Program is designed to foster an integrated approach to solving environmental problems and achieving sustainability, by developing both cultural understanding and a grasp of underlying scientific issues.

This is a new collaboration between the Garden and Washington University, in addition to their longstanding training program for graduate students in botany. It was led by Brad Boyle, who studied at the Garden and earned his Ph.D. from Washington University in 1996.

Nature Conservancy Names New State Director

ROGER STILL was named to head the Missouri Chapter of The Nature Conservancy last fall. Still will direct efforts of the private nonprofit conservation organization to preserve natural areas within Missouri. He has been active in the organization for many years as a member, volunteer, and director of the statewide volunteer effort, and was previously an instructor of Environmental Policy at the University of Kansas.

"In order to preserve and restore the native landscapes of Missouri, we must first restore the citizens of Missouri in meaningful relationships with nature," Still said. "As a chapter we will continue to use science as the number one source of information for our work, in order to get a better understanding of our state and to provide the best possible stewardship for the most vital natural landscapes Missouri has to offer."

Dr. Peter H. Raven said, "The Garden and the Nature Conservancy share many goals, including a fundamental commitment to using education to promote conservation of natural resources and awareness of environmental issues. We look forward to many productive interactions with this outstanding organization in the future."

E. Desmond Lee Science Outreach Program Sponsors Mystery Festival at Normandy Schools

CLIFF WILLIS

Jonathan Zucker, outreach instructor (second from right), and Barbara Addelson, manager of science outreach programs (right), with students and parents during Mystery Night at Garfield School.

THE GARDEN'S E. Desmond Lee Science Outreach Program held three Mystery Festival Nights at schools in the Normandy School District this year. Students and their parents worked together to solve "The Case of the Missing Millionaire," examining a make-believe crime scene and performing experiments to try to solve the puzzle. The Mystery Festival is a science unit from the GEMS program, Great Explorations in Math and Science.

Jonathan Zucker joined the Garden's Education Division last winter as the new E. Desmond Lee Science Outreach instructor. During the spring semester he worked weekly with eight elementary classes in Normandy schools, teaching 175 fourth and fifth graders and working with their teachers to improve science education in the district.

TIM PARKER

THE MULLANPHY BOTANICAL GARDEN Investigative Learning Center is a St. Louis magnet school located just one block east of the Garden on Shaw Boulevard. The Garden's Education Division helps develop curriculum, works with the greenhouse and outdoor garden at the school, and has a full-time teacher on the staff. Mullanphy ILC uses inquiry-based learning to teach a complete curriculum of studies for grades pre-K–5. Shown meeting at Mullanphy ILC are (seated, from left): Dr. Larry DeBuhr, director of education at the Garden; Diane Dymond, instructional coordinator for St. Louis Public Schools at Mullanphy; and Betty Purnell, principal of Mullanphy ILC. Standing, from left: Teresa Mulvihill, the Garden's magnet school instructor at Mullanphy; and Barbara Addelson, manager of science outreach programs at the Garden.

TIM PARKER

New Tram Shelter Is Open

GARDEN VISITORS are enjoying the new tram shelter at the Ridgway Center, which was completed in May. The handsome new structure was built with generous support from The Jackes Foundation and designed by Mackey Mitchell Associates. The wide shady steel canopy is supported by four stone columns and provides much more space for both trams and visitors. The Garden is very grateful to the Jackes Foundation for this splendid new addition, which does so much to enhance services for our visitors.

Webster Groves Nature Society Contributes *Nature Notes* to the Archives

THE WEBSTER GROVES NATURE SOCIETY presented a complete bound set of the group's bulletin, *Nature Notes*, to the Garden library on April 29. The Society is one of the oldest natural history study groups in the St. Louis area and provides a forum for amateurs to become active in exploring, studying, and sharing information about nature. The group has been publishing *Nature Notes* continuously since 1929.

The Garden's subscription previously extended back only to 1970. "These kinds of observations by serious amateurs are an enormously valuable resource for botanical research that can easily be overlooked or lost," said Dr. George Yatskievych, curator of Missouri plants, "We are very glad to have it in the Garden's collection, where it will be available to as many users as possible."

From left: Linda Oestry, reference librarian, Sue Gustafson, president of the Webster Groves Nature Study Society, Betty Nellums, the group's historian, and Victoria McMichael, library assistant. A complete set of* Nature Notes *in not available in any other library.

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SOY INK

Japanese *Festival*

22nd Annual Festival • Labor Day Weekend 1998

Saturday–Monday, September 5–7

10 a.m. to 10 p.m., Saturday & Sunday • 10 a.m. to 5 p.m. Monday

Admission: $6 adults, $4.50 seniors, $2 members.
Free to children age 12 and under.

Featuring

Hawaii Matsuri Taiko Drummers

• Bonsai • Ikebana • Juggler • Music
• The Candyman • Tea Ceremonies
• Bon Odori Festival Dancing
• Cooking Demonstrations
• Kimono Fashion Show • Shibori Dyeing
• Raku Pottery Demonstrations
• Children's Activities and Crafts
• Candlelight Walks in Seiwa-en
• Japanese Marketplace• Processions
• Food Booths • & More!

Additional Walk-in Entrance will be open at the Shoenberg Administration Building, 2345 Tower Grove, beginning Saturday at noon.

For Festival Information Hotline, call GardenLine 24 hours a day: 577-9400, or 1-800-642-8842.

The 22rd Annual Japanese Festival is sponsored by the Missouri Botanical Garden and the Japanese Activities Committee, a coalition of organizations that includes the Japanese American Citizens League, Japan America Society of St. Louis, Japanese Chamber of Commerce & Industry of St. Louis, St. Louis Japanese Language School for Children, St. Louis-SUWA Sister City Committee, St. Louis Japan Society, Seinen Committee, The Women's Association of the Japan America Society, and Office of the Consulate General of Japan in Kansas City.

LABOR DAY WEEKEND

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Missouri
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Garden

SEPTEMBER/
OCTOBER
1998

VOLUME LXXXVI
NUMBER FIVE

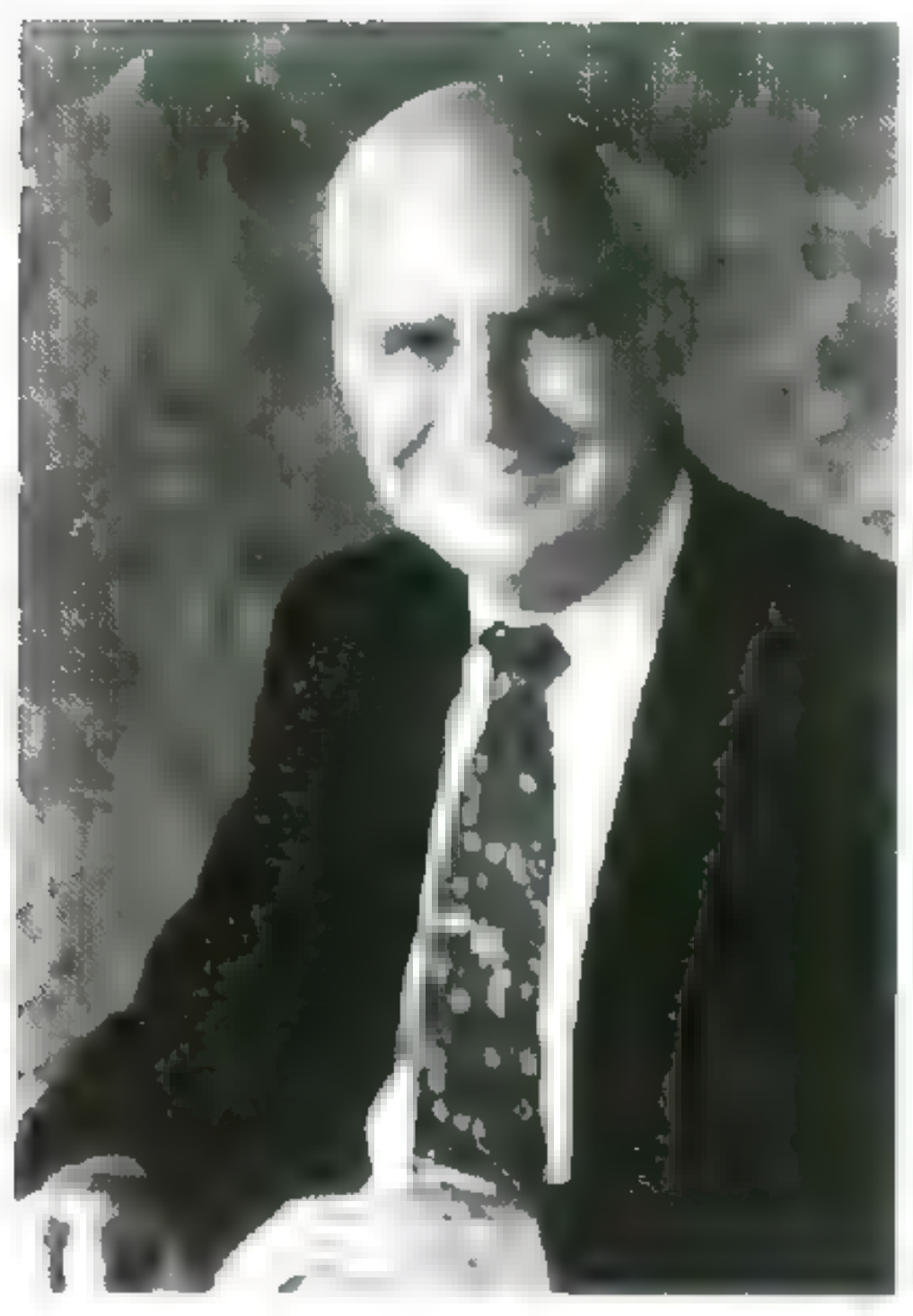
Celebrate Prairie Day at Shaw Arboretum
Saturday, September 19
Co-sponsored by Missouri Department of Conservation

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

IN THE YEARS TO COME, the Donald Danforth Plant Science Center will play a major role in advancing our understanding of plants and their potential to benefit humankind. This endeavor will be of enormous significance for science, for the St. Louis region, and for agricultural advances worldwide. Here at the Garden, we were proud to act as hosts for the announcement of the Danforth Center and to welcome the distinguished guests who took part, and we look forward with excitement and enthusiasm to participating in this groundbreaking endeavor.

In October we will welcome the distinguished scientist Dr. M.S. Swaminathan, who will receive the Henry Shaw Medal in honor of his lifetime of achievement in agricultural science. Also this fall, we invite all of our members to become "Research Partners" of the Missouri Botanical Garden, a new program that supports our botanical research and gives members the opportunity to become more closely involved with our research effort.



Autumn is a wonderful time to enjoy the beauty of the Garden and Shaw Arboretum. For the third consecutive year, we join with the Missouri Department of Conservation to celebrate Prairie Day at the Arboretum, where the 75-acre tall grass prairie provides a wonderful place to learn about Missouri's prairie heritage. And for more fun and activities for the entire family, join us for the seventh annual "Best of Missouri" Market on October 3 and 4 — it promises to bigger and better than ever.

— Peter H. Raven, Director

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400

24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522

You will need a touch-tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401

Information on jobs and volunteer opportunities at the Garden is available with a touch-tone phone. Listings are updated bi-weekly. or see the Garden Website, below.

Horticultural Answer Service: 577-5143

9:00 a.m. to noon, Monday through Friday.

Master Composter Hotline: (314)577-9555

9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:
http://www.mobot.org/

Mailing Address:

Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours

9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 40 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. Admission is free for Garden members. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House open 10 a.m. to 4 p.m. daily, closed on Mondays. For information call (314) 451-3512.

The Missouri Botanical Garden and its Arboretum are for the enjoyment and education of visitors. To ensure the fulfillment of its mission and the enjoyment of its grounds, the Garden does not permit the circulation of petitions, picketing or other kinds of demonstrations on its grounds or the grounds of the Arboretum.

Organizations and individuals who wish to circulate petitions or to demonstrate, picket, or conduct similar activities will be directed to the public streets and sidewalks outside the grounds and directed not to block access or egress or in any other way present a hazard to visitors or others.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this Bulletin and mail to:

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On the Cover

"The Three Graces," a bronze by Gerhard Marcks, stands by a pool in the English Woodland Garden.
– Photo by Jack Jennings

Editor
Susan Woolevhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House invitations to special events and receptions; announcements of all lectures and classes, discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members. For information, please call (314) 577-5118

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DONALD DANFORTH
PLANT SCIENCE CENTER

On July 31, 1998, the Donald Danforth Plant Science Center was launched in a ceremony at the Missouri Botanical Garden before an audience of 450 distinguished scientific, business and civic leaders. The Honorable Jimmy Carter, 39th President of the United States, gave the keynote address.

The Danforth Center will be the world's preeminent research institution for plant science and will lead the world in new scientific discoveries for fighting hunger, disease and environmental degradation. The not-for-profit, independent research facility will be located in St. Louis County and will open in 2000.

Nobel Laureate Dr. Norman Borlaug hailed the Center's founders in an address the night before the ceremony, saying, "these four institutions are certain to play a major role in producing the food that will be needed for generations to come."

PHOTOGRAPHS BY TIM PARKER

Representing the founders of the Donald Danforth Plant Science Center (from left): Mark S. Wrighton, chancellor of Washington University; William H. Danforth, chairman of the boards of Washington University and the Danforth Plant Science Center; David Chicoine, dean of the College of Agricultural Consumer and Environmental Sciences at the University of Illinois; Richard L. Wallace, chancellor of the University of Missouri – Columbia; Peter H. Raven, director of the Missouri Botanical Garden; Roger N. Beachy, new director of the Danforth Center; and Robert B. Shapiro, chairman and chief executive officer of Monsanto Company.

Other speakers at the launch ceremony included United States Senator Christopher S. Bond and The Honorable Richard A. Gephardt, House Democratic Leader, U.S. House of Representatives, who delivered remarks by video.

"Sustainable agriculture will play a central role in protecting the health of the earth."

Roger N. Beachy Is Named Director

DR. ROGER N. BEACHY, one of the world's foremost plant scientists, has been named director of the Donald Danforth Plant Science Center. Dr. William H. Danforth made the announcement at the ceremony on July 31.

Dr. Beachy, 53, is internationally known for his groundbreaking work on virus-resistant plants. Since 1991 he has been director of the Division of Plant Biology at The Scripps Research Institute, a leading biomedical research institution in La Jolla, California.

He is also co-director of the International Laboratory for Tropical Agricultural Biotechnology. His technique to produce resistance to a virus in tomatoes has been replicated by other researchers, producing other disease-resistant plants.

"We're lucky to have him," said William Danforth. "Dr. Beachy is a first-rate scientist." Beachy was selected after an international search that included more than 50 candidates.

Beachy will work closely with the Danforth Center during the next few months and will begin his duties full time next January. After an architect is chosen for the facility, planning and construction are scheduled to be completed in about two years.

Dr. Beachy was a professor of biology at Washington University from 1978 to 1991 and head of its Center for Plant Science and Biotechnology. He serves on numerous boards and committees, including the National Research Council, and is a fellow of many of scientific societies, including the National Academy of Sciences. He has produced more than 140 journal publications.

He holds a Ph.D. in plant pathology from Michigan State University and a B.A. in biology from Goshen College in Goshen, Indiana.

PLANT SCIENCE CENTER

THE DANFORTH CENTER began 18 months ago as a unique collaboration of three prominent research universities, a Fortune 500 company, and a botanical garden. Each of the founding institutions is a recognized leader in the plant sciences:

- Missouri Botanical Garden, home to the world's most extensive field-oriented botanical research program in taxonomy and systematic botany;
- Monsanto, the world's largest agricultural products company;
- Washington University, center for the world's most extensive research programs on genomes;
- University of Missouri-Columbia, a land-grant institution with a nationally recognized, interdisciplinary plant science effort.

The University of Illinois at Champaign-Urbana, another land-grant institution with a strong agricultural research tradition, has joined the consortium as a fifth partner, it was announced at the ceremony. To date, the Danforth Center has received $146.4 million in gifts and pledges from Monsanto Company and the Danforth Foundation.

Peter Raven said, "The Danforth Center will be a focal point for cutting edge, fundamental research on plant biology at the molecular and cellular level. Each of the partner institutions brings important strengths to that effort, and our collaboration will benefit all areas of plant science."

The Center was created to advance knowledge in basic plant science and to generate scientific breakthroughs that will help assure more plentiful, nutritious, and sustainable food crops. As an independent institution, the Center will retain the rights to any discoveries it develops, and the proceeds will help support its work.

Appropriately, the Danforth Center will be located in the center of the United States's agricultural heartland. Within a 500-mile radius of St. Louis lies the world's most fertile cropland, accounting for 75 percent of American farm production.

The Danforth Center's focus will be international in scope. In addition to addressing global issues of food security and conservation, the Center will provide a training ground for visiting scientists from around the world who can learn more productive and sustainable farming techniques to take back home.

President Carter Praises Danforth Center

"As we stand on the brink of a new millennium, there is no greater challenge ahead than to feed the world's population and to ensure the

Peter Raven said, "The Danforth Center will be a focal point for cutting edge, fundamental research on plant biology. The collaboration will benefit all areas of plant science."

As Nobel Laureate Norman Borlaug (left) looked on, Peter Raven (right) presented Jimmy Carter with a commemorative Missouri Botanical Garden bowl.

Jimmy Carter said, "This collaboration between public and private sectors, between academia and industry, will bring together some of the best scientific minds of our time."

health of our children," President Carter said in his address, "and to accomplish that without further degradation of the earth that sustains us." Science and technology must lead the way in helping farmers grow more food without additional destruction of wetlands, rain forests and wilderness areas, Carter said.

Missouri Governor Mel Carnahan hailed the Center for "sowing the seeds for Missouri's future."

President Carter is personally dedicated to the international crusade against hunger and poverty. The Carter Center's SG 2000 Agriculture Program has helped farmers in 12 African countries modernize their farming methods in order to become more productive and economically self-reliant.

"I congratulate the founders of the Donald Danforth Plant Science Center for their vision and commitment to helping the world find new answers to these critical, age-old problems," Carter said. "The collaboration between public and private sectors, between academia and industry, will bring together some of the best scientific minds of our time."

A Global Imperative

Unless scientific advances are developed to grow food more efficiently and with less environmental damage, scientists predict that shortages and environmental destruction will become widespread in the next century, threatening peace and economic well being around the world.

Earth began the 20th century with 1.6 billion inhabitants and will end it with 6 billion. Increasing by 230,000 a day, world population is expected to reach 8.3 billion by 2025.

If per capita food consumption stays constant, the annual demand for food could rise by 60 percent in 2030, compared to 1990. If diets improve among the needy, annual food demand could double.

Meanwhile, 25 billion tons of topsoil are being lost each year due to erosion and tilling — roughly the equivalent of all the topsoil in the state of Missouri. Tropical rainforests are being burned and aquifers are being depleted or contaminated by runoff.

Over the last 100 years, technology-driven advances have boosted agricultural productivity. But maximum efficiencies have been squeezed from current high-yield technologies.

If yields do not keep up with the expanding population, another nine million square miles of farmland will be needed to feed the world, an area more than twice the size of all the planet's tropical rain forests.

Research advances developed at the Danforth Center will help to fight hunger and environmental degradation.

Center Is Named for Donald Danforth

THE LATE DONALD DANFORTH, former president of Ralston Purina Company, "was a very modest person and did not seek the limelight," said his son, Dr. William H. Danforth. "He was a man of ideals who cared about people and the human condition. Naming this research institution for him was something his children very much wanted to do in order to have some memory of him in St. Louis, a city that he loved."

William H. Danforth serves as chairman of the Danforth Center's board. He is a former chancellor and now chairman of the Board of Trustees of Washington University and director of the Danforth Foundation.

John C. Danforth, former U.S. Senator from Missouri and chairman of the Danforth Foundation, said that he couldn't imagine his father thinking about the words "shareholder value." "His mission was to feed the world," Danforth said. "There is no more fitting tribute to my father."

The Danforth Center will make St. Louis the world's leading center for plant science research. William Danforth called it "A gift from this region to the rest of the world."

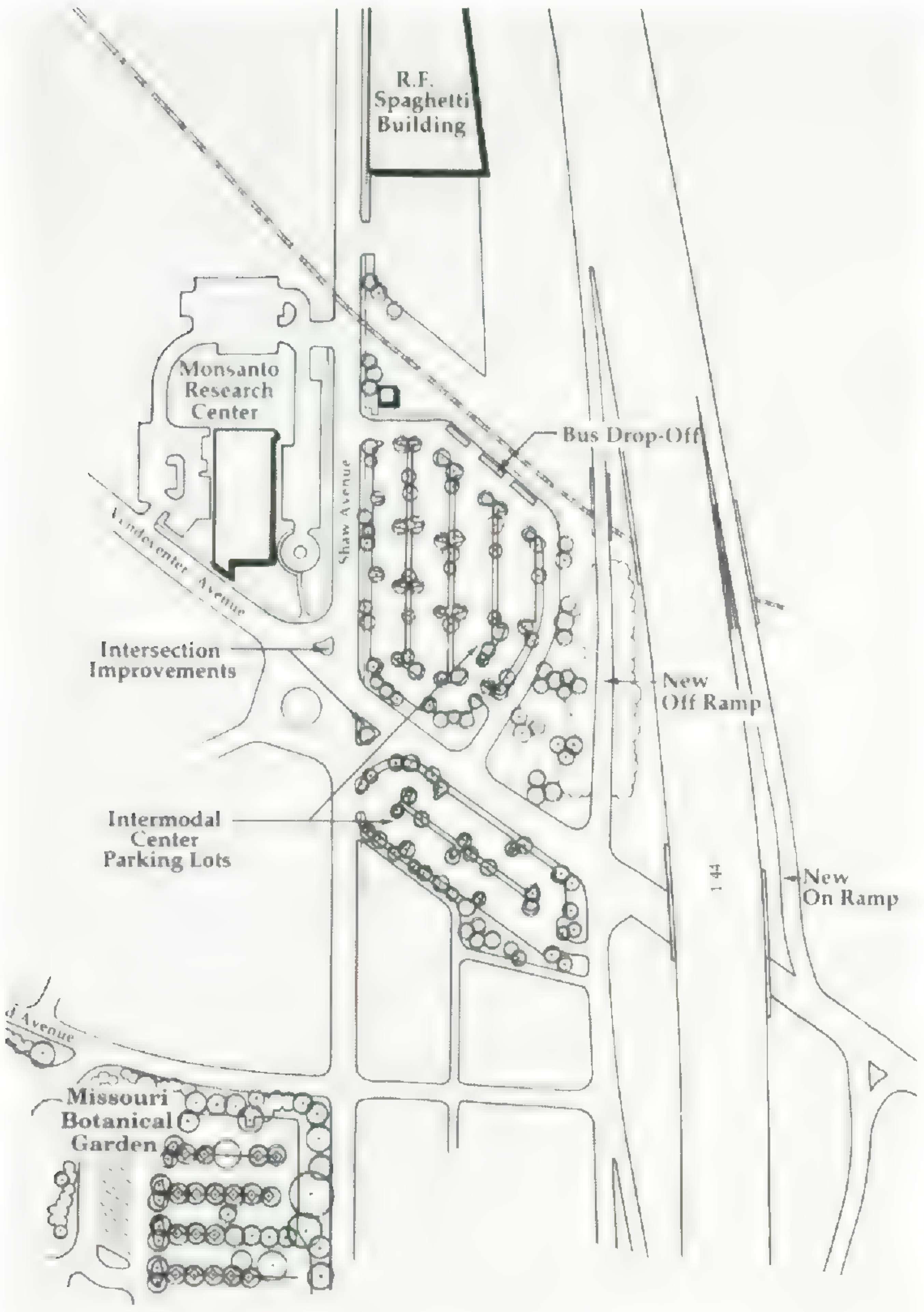
The Danforth Foundation has contributed $10 million to the Plant Science Center's capital and operating expenses and pledged an additional $50 million in support over the next 10 years. The Foundation's total gift of $60 million is the largest ever made to support plant science research.

Mr. and Mrs. William H. Danforth and their children, Dorothy Danforth Compton and Donald Danforth, established the Danforth Foundation in 1927. The foundation supports growth and development in the greater St. Louis region.

From left: John and William Danforth greet Jimmy Carter.

Improvements Planned at Vandeventer and Shaw

Will improve access and provide extra parking for Garden visitors.



New Transit Center Planned

RECENT reauthorization of federal legislation known as TEA-21 (Transportation Efficiency Act of the 21st Century) provides $3.4 million over the next two years to develop an intermodal transit center at the northern corners of Vandeventer and Shaw across from the new Monsanto Center. At least six Bi-State buses serving the metropolitan region, South St. Louis, and the Garden neighborhood will utilize the new center. The Garden and the Bi-State Agency matched a portion of the federal funds through direct and inkind contributions to the development of the facility, resulting in a $5.7 million project.

More Parking

The transit center will include a bus shelter and a Park n' Ride lot, which will be available for overflow parking during weekend and evening events at the Garden. The parking lots will be attractively landscaped and screened with plantings on the east side of the east lot.

Better Traffic Flow

The Garden recently completed the purchase of all the property along Vandeventer from the new eastbound Interstate 44 ramp to Shaw. These acquisitions will allow for much-needed improvements at the intersection. A turning radius will be added at The Monsanto Center corner and at the northeast corner, along with a left turn lane for southbound Vandeventer onto Shaw.

The changes will improve the flow of traffic at the intersection and make it easier for visitors to reach the Garden. Removal of the buildings will begin this fall, and construction of the landscaped parking lot and intersection improvements will begin next spring.

New I-44 Ramps

The new ramps under construction at Vandeventer and I-44 are expected to be complete in October. The addition of these ramps will make the current interchange into a full diamond at Vandeventer, allowing on and off access in all directions. The ramps will greatly improve access to the Garden for cars arriving on eastbound I-44, as well as much easier access to westbound I-44 for visitors leaving the Garden. The Garden worked closely with neighborhood organizations as all of these plans developed.

Winners of the naming contest, shown with the new shuttle (from left): Trevor Graham of Bridgeton, Missouri, with his parents; Peter Raven; Rachel Parker of Granite City, Illinois, with her brother and parents; Sam, Ben, and Clay Chapman of Washington, Missouri, with their parents; and Tom Irwin, executive director of Bi-State. Not pictured: Matthew Jones and family, of Maywood, Missouri.

GARDEN EXPRESS: The "Bloomer Zoomer" Makes Its Debut

THE BRIGHTLY PAINTED GARDEN EXPRESS has been turning heads ever since it began shuttle service between the Garden and the Central West End MetroLink station on June 22, 1998. The Bi-State Development Agency and the Garden sponsored a children's contest to name the new bus, drawing hundreds of entries from residents of the St. Louis metropolitan region.

The Garden Express makes visiting the Garden easier for many people. The colorful shuttles operate every 20 minutes, linking the Garden and MetroLink with the Shaw Neighborhood, Washington University Medical Center, the Central Institute for the Deaf, and Tower Grove Park.

The contest winners are Trevor Graham, Rachel Parker, Matthew Jones, and Sam, Ben, and Clay Chapman. Trevor, Rachel, and Matthew all submitted the winning name, "Garden Express," and the Chapmans submitted "Bloomer Zoomer," which was chosen as a tag line.

M.S. Swaminathan To Receive Henry Shaw Medal

DR. M.S. SWAMINATHAN, one of the world's leading agricultural scientists, will receive the Henry Shaw Medal on October 22, 1998, at the annual dinner honoring Henry Shaw Associates, Garden Fellows, and Peter H. Raven Society members at the Ritz-Carlton St. Louis.

The Henry Shaw Medal, the Garden's highest award, honors those who have made a significant contribution to botanical research, horticulture, conservation, or the museum community.

Dr. Swaminathan is internationally renowned as a leader of the "Green Revolution," the global effort of this century to increase world food production to meet the demands of growing world population. He was at the forefront of one of the most remarkable agricultural accomplishments in recent history — moving India from having the largest food deficit in the world to producing enough grain to feed all its people. His research covers a wide range of basic and applied plant genetics, agricultural research, and sustainable development.

He was the first laureate of the World Food Prize, widely regarded as the equivalent of a Nobel Prize in Agriculture.

In 1986, Dr. Swaminathan received the Albert Einstein World Award on Science. In 1987, he became the first laureate of the World Food Prize, widely regarded as the equivalent of a Nobel Prize in Agriculture.

Educated in India, Dr. Swaminathan received his Ph.D. in genetics from Cambridge University in England in 1952. His distinguished career has included service as chairman of the U.N. Advisory Committee on Science and Technology for Development, director general of the Indian Council of Agricultural Research, and president of the World Wide Fund for Nature — India. He is a fellow of seven national academies of science and has received over 34 honorary doctorates from institutions on three continents. Dr. Swaminathan has published over 250 scientific papers in international journals and several books.

On the occasion of his receiving the first World Food Prize at the Smithsonian Institution, Javier Pérez de Cuellar, Secretary General of the United Nations, wrote, "Dr. Swaminathan is a living legend. His contributions to agricultural science have made an indelible mark on food production in India and elsewhere in the developing world. By any standards, he will go into the annals of history as a world scientist of rare distinction."

Share the Vision — Become a Research Partner of the Missouri Botanical Garden

Botanists Roy Gereau and Dr. Charlotte Taylor of the Garden's Research Division examine herbarium specimens at The Monsanto Center.

RESEARCH PARTNERS is a new program for Garden members to support the Garden's work to collect, identify, and publish botanical data for study and research worldwide. Efforts focus on training the next generation of research botanists and pioneering a global conservation effort to save and protect plant diversity.

Research Partners select a flora project to support and become involved in its progress. Research Partners receive periodic updates on their floras and participate in special events and lectures at The Monsanto Center, where they meet and talk with Garden botanists. For a preview, be sure to attend the special open house for all members on October 15 (see page 15).

For more information on Research Partners, see the special mailing sent recently to all Garden members, or call Kelly Dopman, development manager, at (314) 577-0847.

First Time in a Quarter Century—

Victoria amazonica Blooms at the Garden

VICTORIA AMAZONICA, the spectacular Amazon water lily, likes the warm waters of its native Amazon River basin. That's one good thing to chalk up to El Niño — this summer, the huge plants are on display outdoors at the Garden for the first time in 25 years.

The water lily pools at the Garden have not been heated since the early 1900s, when *Victoria* water lilies were grown in heated pools in front of Henry Shaw's main conservatory, located approximately where the Gladney Rose Garden is today. Repeated disappointments with growing *Victoria amazonica* in unheated pools led the staff to abandon growing the species outdoors, as it is much more tender and difficult to grow than its two cousins, *V. cruziana* and *V.* 'Longwood Hybrid'.

Anticipating a summer season with warmer-than-usual temperatures, horticulturist Joe Summers sowed *Victoria amazonica* seed on March 3, 1998. Just getting them to sprout is difficult — germination can take from ten days to ten years, with success rates from zero to 100 percent.

"I like a challenge," Summers said. "I planted the seed in heated tanks in the greenhouse, with water temperature in the mid-eighties. We were lucky — this is only the second year we've tried it."

Summers and Jon Sweeney, who takes care of the water lilies in the display pools, set out the plants in three-foot pots on June 23, with water temperature at 81 degrees.

During August, Summers and Sweeney could be seen wading around in the pools at odd hours of the night, trying to pollinate the flowers by hand, as the appropriate insects do not live in this part of the world. "We won't know until sometime in September whether we were successful," Summers said.

The breathtaking *Victoria amazonica*, largest water lily in the world, can be seen growing in the pools near the Climatron through September.

Victoria amazonica has the largest leaves of any tropical water lily, up to seven feet in diameter, and the leaves can grow at an amazing rate, up to an inch an hour at their peak. All *Victorias* are night bloomers pollinated by night-flying insects, primarily the large scarab beetle *Cyclocephala hardyi*, which stays inside the closed flower during the day. The blossoms open at sunset for just two nights and close up when the morning sun strikes them. The first night the flowers are pure white, with a fragrance of pineapple and butterscotch; the second night the flower is pink.

Named for Queen Victoria

The species is native to Brazil, Guyana, and Bolivia. It was named in honor of Queen Victoria by the British explorer Sir Robert Schomburgk, who sighted the plants on New Year's Day 1837, during an expedition to Guyana. In 1849 the plants were first coaxed to flower in England by Joseph Paxton, head gardener at Chatsworth, the estate of the Duke of Devonshire, exciting the admiration of horticulturists everywhere.

The following year, Paxton submitted the winning design for the Crystal Palace, which was erected in London in 1851. The vast exhibit hall of glass panels supported by slender columns of iron was inspired by the symmetrical structure of the veins in *Victoria amazonica*'s immense leaves.

Water Lilies at the Garden

The *Victoria* water lily has a long history at the Missouri Botanical Garden. It first arrived here in 1894, brought by James Gurney, the man Henry Shaw had hired as his head gardener in 1857. In 1982 the Ridgway Center opened, with a design reminiscent of the Crystal Palace.

A hybrid of *Victoria amazonica* and *V. cruziana*, named *Victoria* 'Longwood Hybrid', was exhibited outdoors at the Garden for many years. It was developed at Longwood Gardens with the assistance of George Pring, a famed water lily expert and Garden horticulturist from 1910-1963. In recent years, the pools facing the Climatron

continued on page 9

NEW LIVING EXHIBITS in the Brookings Interpretive Center

Denizens of the Rain Forest

Question: What animals possess a skin that can kill ten men, yields a powerful painkiller, and helps feed indigenous people in the Colombian rain forest?

Answer: Poison frogs!

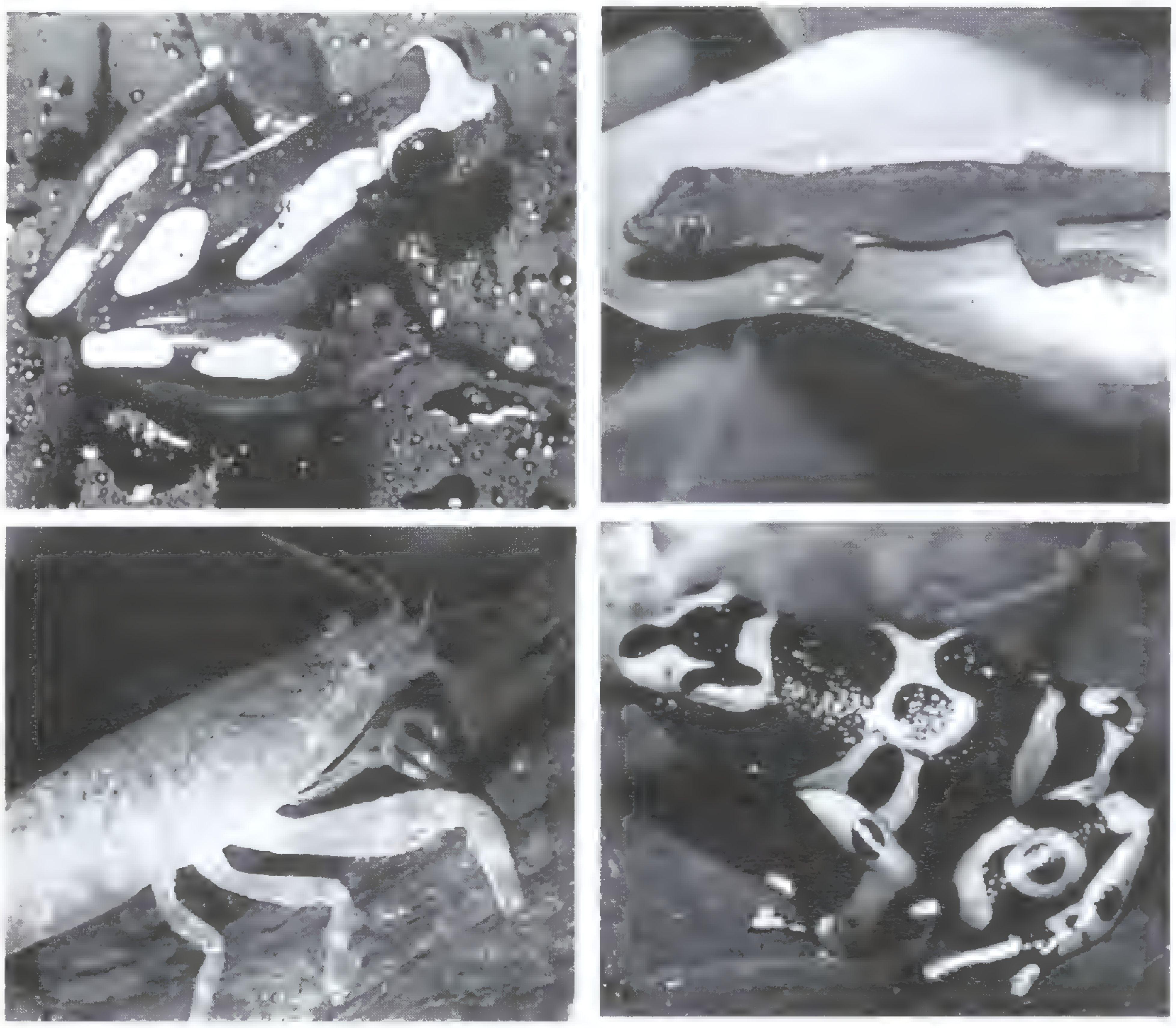
Now you can see these amazing creatures of the tropical rain forest up close when you visit the Brookings Interpretive Center. But don't worry — scientists believe the frogs' poison comes from animals they eat in the wild. Since we cannot duplicate the frogs' natural diet, our frogs are non-toxic.

Also new in the Brookings Center:

- A living miniature replica of a mangrove ecosystem.
- A living display of gecko lizards that aid in the pollination of palm trees and orchids on the Seychelles Islands.

Drop by the Climatron and see these exciting new exhibits in the Brookings Center.

— Greg Basco, manager, Brookings Interpretive Center



GRAPHS BY DR. DANNY BEATH

WATER LILY
continued from page 8

have featured *V. cruziana* and *V.* 'Longwood Hybrid'.

One of the two *Victoria amazonica* plants on display at the Garden this summer came from seed collected in Brazil last February by the Victoria Conservancy Project, on a trip sanctioned by the Brazilian government. The group which also provided seed for the second plant growing here, organized the expedition to obtain new DNA for the plants' gene pool.

If our plants produce seed, the Garden will share it with the Victoria Conservancy Project. Next March, Joe Summers will visit the tropics to collect *Victoria amazonica* seed on a trip sponsored by Sherwood's Forest Nursery and Garden Center.

—Prepared with Joseph M. Summers and Stephen E. Wolff, MBG horticulturists

CLIFF WILLIS

Entertainers at the 1997 Brick Donors' Party.

Follow the Yellow Brick Road!

Wednesday, September 23, 1998 • 5 to 7 p.m.

Donors' Party in the Members' Entry Court

Enjoy a reception exclusively for donors of bricks in the Members' Entry Court at the William T. Kemper Center for Home Gardening. All brick donations support the Missouri Botanical Garden.

- Engraved bricks — $300 each
- Bronze Signature bricks — $1,000 each
- Up to 28 characters may be engraved on each brick — names only, please. We cannot accommodate dates or sentiments.
- Payment may be made by cash, check, or MasterCard/Visa.
- Order forms are available at the Membership Services Desk in the Ridgway Center, at the Kemper Center, or you may call the Development Office at (314) 577-9495.

Bricks ordered after September 11, 1998, cannot be installed in time for the party on September 23, but of course all donors are welcome to attend the party. Order your brick today!

Garden Guides Celebrate 30th Anniversary

Tenth Anniversary for Weekend Guides

SHOWING VISITORS AROUND THE GARDEN has been a favorite activity of St. Louisans since Henry Shaw welcomed his first guests in 1859. Today it is hard to imagine the Garden without the men and women in the green vests — the knowledgeable docents who know more about the Garden than almost anyone else.

The Guides held their first training class on September 17, 1968. Kenneth Peck, head of education, was in charge of the project, assisted by eminent colleagues including botanist Edgar Anderson, horticulturists Paul Kohl and Lad Cutak, and Derek Burch, head of horticulture. Harriot Smith was the Guides' first chairman.

Two of the original 25 Guides, Edna Dependahl and Shirley Durfee, are still leading tours. They remember the days of classes in the Museum Building and no scheduling secretary.

Today the Guides work closely with the Education Division to recruit, train, and manage their organization. Each year they offer tours to hundreds of visitors of all ages on topics ranging from the history of Henry Shaw and the Garden to interpretation of the Japanese and Chinese gardens, sculpture, botany and ecology. Under the leadership of co-chairs Joanne Fogarty and Judy Horan, the Guides act as hosts at every major Garden event, adding immeasurably to the enjoyment of flower shows, the Japanese Festival, open houses at The Monsanto Center, and more.

Currently there are 66 weekday Guides, including 11 trainees who will graduate next spring. The first male guide, John Scott, joined the group in 1982; today there are 11 men.

The Guides offer free public tours at 1 p.m. every day except Christmas and New Year's, and schedule group tours at other times. In addition, each Guide is required to take 25 hours of enrichment training every year and do research on the tour topics. In 1987 the Guides began offering their members a series of field trips to visit major gardens in London, Chicago, New York, Montreal, Charleston, and many others.

Weekend Guides

In response to popular demand from people who cannot visit the Garden on weekdays, the Weekend Guides program was launched ten years ago. Two of the original trainees, Sara Johnson and Eileen Hahn, are still active, and currently there are eight weekend guides, chaired by Jackie Johnson.

The two groups of Guides will share a joint anniversary celebration on October 13, 1998. Our hats are off to these exceptional volunteers who add so much to everyone's enjoyment of the Garden.

Guides' co-chairs Joanne Fogarty and Judy Horan (left) and Guide Janne Niemoeller (right) greet visitors from Oklahoma, Iowa and Florida.

CHARITABLE GIFT PLANNING

Charitable Gifts Provide Tax Advantages

ALTHOUGH we typically associate taxes with April, the best time to consider the benefits of estate planning is now, while there is time to consider options prior to the December 31 deadline for 1998 tax deductions.

In recent years, many individuals have enjoyed significant gains in their portfolio of investments, but may feel locked into a position because of capital gains tax that would be due if they were to sell appreciated securities. To avoid the tax ramifications of an outright sale of stock, many people are choosing to support their favorite charities with gifts of stock. Gifts of securities can be a tax-efficient way to make meaningful gifts with little or no effect on current spendable income.

When making a gift of an appreciated security that you have owned longer than one year, you are entitled to an income tax deduction for the full current value of the asset, not just the amount you paid for it. The capital gains tax is avoided. You are, in effect, using the "paper profits" from your investment to reduce the amount of income tax you would otherwise owe.

If you would like additional information, please call Patricia Arnold, director of development at (314) 577-5120 or write to her at P.O. Box 299, St. Louis, Missouri 63166.

REMEMBER —
Free Financial Planning Seminar

Estate Planning for the 21st Century

Wednesday, September 9, 1998
9 a.m. to noon, Shoenberg Auditorium

Members and their guests are invited to a free financial planning seminar and talk with experts in the field. Admission to the seminar is free. Please make reservations by calling Judi Schraer at (314) 577-5120.

TIM PARKER

At left: Award winners (from left): Adam Donges, Peter Raven, Pauline Kittlaus, Rus Goddard, John Skinner, and Ray Garlick.

18th Annual Volunteer Evening

LAST YEAR, 1,063 volunteers contributed 84,267 hours of service to the Garden, the equivalent of 43 full-time staff. Garden volunteers not only contribute an astounding array of services, they pass the torch from one to another, training others to carry on their work. On June 4, 1998, the Garden honored a few of the extraordinary men and women who contribute so much to this institution.

Special Achievement Award — Ray Garlick and Rus Goddard
Ray and Rus have been volunteers at Shaw Arboretum for 20 years. Rus's activities include clearing and building hiking trails, chopping wood for Maple Syrup classes, and glade restoration. Ray mows the open meadows and trails, maintains the service roads and opens and closes the public gate 365 days a year.

Extra Service Hours — Adam Donges
Adam has been a volunteer woodworker at Shaw Arboretum for 17 years. In 1997 he contributed 618.5 hours building period storage cabinets for the Joseph H. Bascom Manor House, restoring antique light fixtures at the Adlyne Freund Education Center, fabricating wooden signs for the Freund Center trails, and building and installing bookshelves for the Arboretum Visitor Center.

Career Service Award — Pauline Kittlaus
Pauline has been an active volunteer for 26 years, working in the greenhouse and, for a time, in the library. Known as a perfectionist with great organizational skills and speed, Pauline is a mainstay of the Horticulture Division. She recently celebrated her 90th birthday.

Commitment Award — John Skinner
This award honors a volunteer who regularly and conscientiously performs necessary tasks that may be dull or repetitive. John Skinner does monumental work entering data in TROPICOS, the Garden's botanical database. Because of his scholarly diligence and perseverence, our botanists have been able to spend more time editing *Flora Mesoamericana*, and scientists all over the world can use our research data on the Internet.

Organization Award — Henry Shaw Cactus Society
This award honors a group that organizes and executes its own projects and affairs and makes an outstanding contribution on a special project. The Cactus Society moved and saved the Garden's valuable collection of cacti and succulents when the Desert House was torn down and maintains the plants in the greenhouse. Pat Thomann, Steve Feiner, Tab Tabachik, and Carole Sanders were singled out for special recognition.

Above: Representing the Henry Shaw Cactus Society were Pat Thomann(left) and Carole Sanders, with Peter Raven.

HARDY LILIES

WHEN someone mentions lilies, we may think only of the fragrant white Easter lily, *Lilium longiflorum*. And some people may confuse true lilies, *Lilium*, with the perennial daylilies, *Hemerocallis*. True lilies grow from bulbs and have foliage on their stems. These beautiful plants have colorful, often fragrant blooms and are a dramatic addition to any garden.

History

Lilies, one of the oldest cultivated flowers, have been grown in gardens in Europe and Asia for thousands of years. More than any other flower, the lily appears in the mythology, religions, folklore, and art of nearly every major civilization.

According to the ancient Greeks, the first lilies sprouted from droplets of Hera's milk that fell from Mount Olympus. Lilies symbolized divinely granted power, fertility, and generosity in ancient cultures. In Christian art, lilies represent purity and are often associated with the Madonna; *Lilium candidum* is called the Madonna lily.

Types

Lilies are geophytic, meaning they grow from bulbs. Lily bulbs are unique, made up of fleshy scales. Nearly 100 different species lilies occur in nature, originating from northern temperate regions of North America, Europe, and Asia.

Lilies are commonly classified as Asiatic, Aurelian or trumpets, Oriental, species, and Turk's cap types. Within these groups are hundreds of hybrids in every color except black and blue. Some have intoxicating fragrance, some have no scent at all. Their height varies from mere inches to several feet, and blossoms come in a wide range of shapes, sizes, and abundance.

In St. Louis, lilies provide a glorious show of color from early June through July. But beware — not all varieties are reliably hardy in our climate. Orientals and some of the species lilies in particular do not perform well in the heat of a Midwest summer.

Selection

The best choices for our climatic extremes are Asiatic and trumpet lilies, and a handful of species. The trumpets are the tallest and most fragrant, ranging from 4 to 8 feet tall. The only disadvantage to trumpet lilies is their need for staking. Asiatics range between one-and-a-half feet and five feet tall, offer the most colors, and rarely need staking. Species that will grow easily are *Lilium henryi, L. martagon, L. lancifolium* or tiger lily, and *L. pardalinum*, or leopard lily.

Timing

The best time to plant lilies is early autumn, which allows the roots to get well established before winter. Bulbs planted in spring will grow, but they will not be as vigorous.

Site Preparation

Before your bulbs arrive in fall, select and prepare your site. Find an area in the garden where they will receive full sun, unless you are planting woodland species or lilies with darker colors that would fade in intense all-day sunlight. Give these plants morning sun and dappled afternoon shade.

Be sure to allow for good air circulation between plants. Lilies are very susceptible to a fungal disease, *Botrytis*, caused by prolonged cool, wet weather. Any all-purpose rose fungicide is the most effective treatment.

The key to success with lilies is good drainage. This is vital to the life of the bulbs, which are prone to rot and fungal diseases in wet, mucky soil. To prevent this, work the soil from 12 to 18 inches deep with a spade. If necessary, add sand or grit to improve heavy soil. Work in a liberal amount of compost, leafmold, or peatmoss (only for the acid-loving species) at the rate of one part humus to two parts soil. Your lilies will benefit

greatly from this treatment and reward you with showy blooms for years to come.

Planting

The rule of thumb for lilies, and all bulbs for that matter, is to plant them three times the bulb height deep. This will protect them from freezing and thawing, which may cause heaving, and gives plenty of room for the stem roots to grow.

Space lily bulbs at least ten inches apart for smaller varieties, 15 inches or more for larger plants. If the plants will require staking later, place a wooden stake alongside each bulb extending just above the soil line, and fill the hole with dirt. When the plant emerges in spring, you can replace the stake with a taller one without injury to the bulb.

Tamp down the soil, then cover with mulch, preferably something light and rich. Leafmold, peatmoss, or cow manure three years old or older are best. The mulch retains moisture, cools the soil, controls weeds, and provides the most usable source of nutrition for the plant.

Companion plantings of shallow-rooted ground covers, annuals, or perennials can be used around the lily plants — just be sure they don't harbor slugs. Once all of this is done, water in your newly planted bulbs to initiate strong root growth before the onset of winter.

Care and Feeding

Rich mulch and good garden soil are usually sufficient, but an application of any fertilizer rich in potash will do wonders for your lilies and other bulbs. Use a formulation around 5-10-15, with higher percentages of potash and phosphorus than nitrogen.

Following package directions, scratch in a generous helping in spring when the foliage is emerging. Add a couple of lighter feedings later in the season. Do not let fertilizer come in direct contact with the bulb or its foliage! Water thoroughly after applying.

Lilies need constant moisture, though not wet feet. They benefit from frequent watering throughout the spring and summer. A soaker hose laid among the plants and left on for a few hours a day, two or three times a week, would be best. Overhead watering is not recommended, as it creates favorable conditions for fungal diseases.

Remove spent flowers as soon as they are finished blooming. The wilted blossoms look unsightly and can harbor disease, but more important, if seed pods develop they will drain energy needed for next year's bloom. Remove only the spent flowers and pods — leave the stem with its leaves, as they are the bulb's source of energy. Cut back stalks only when they have yellowed in the fall. Discard the stems in case disease may have been present.

Dividing

Lilies will thrive for years in the same spot, especially when they are well cared for. Only transplant when they become overcrowded. Dig and divide the bulbs in early fall. If you must replant in the same spot, enrich the soil with more humus and additional fertilizer.

For more information on growing lilies and a great selection of bulbs, be sure to visit the Mid-America Regional Lily Society Sale at the Garden this fall on October 24-25 (see page 15). Be sure to come see the Samuels and Heckman Bulb Gardens next summer, where we have 36 different varieties of lilies on display.

— Jason A. Delaney,
MBG Horticulturist

CHEFS IN A GARDEN

A Special Event to Benefit Gateway Greening

Sunday, September 13, 1998, 6 to 9 p.m.
First Floor Atrium, Edward Jones
Manchester & I-270
$100 per person
For tickets, call 577-9484.

Eleven of the finest chefs in St. Louis will use herbs and vegetables grown in city community gardens to create an exciting assortment of tasting dishes. Join us for a delightful evening of fine food, wine and beer, live jazz, and casual garden dining. Share the harvest — and help neighborhoods fighting urban decline.

Featuring specialties by the chefs from Annie Gunn's, Balaban's, Big Sky Café, Blue Water Grill, Café Provencale, Cardwell's on the Plaza, Harvest, Lo Russo's Cucina, Remy's Café and Wine Bar, Riddle's Penultimate Café and Wine Bar, and Companion Bakery.

Gateway Greening, Inc. is a non-profit organization with headquarters at the Missouri Botanical Garden. Gateway Greening works with neighborhoods in the City of St. Louis to turn abandoned lots into community gardens and green spaces.

PAUL PISTORIO

Phil Noe, chef at Blue Water Grill, inspecting the produce at McPherson Community Garden

Calendar

September 1 – 7

Leapin' Lizards!

9 a.m. to 8 p.m. daily through Labor Day. Lifesize, lifelike dinosaurs prowl through the primitive ferns and cycads in Climatron rain forest. And you can't miss the 30-foot *Maiasaura*, "good mother lizard," just outside.

September 1 — October 31

"The Arboretum through the Seasons"

10 a.m. to 4 p.m. Tuesday through Sunday, Bascom Manor House, Shaw Arboretum. Forty beautiful color photographs of the Arboretum by the members of Missouri Nature and Environmental Photographers. Free with Arboretum admission.

September 3 – 10
Thursday – Thursday

Japanese Art Exhibits

9 a.m. to 8 p.m. daily. Three exhibits feature Japanese postage stamps, calligraphy, and miniature sculpture. Free with Festival admission or Garden admission.

September 5 – 7
Saturday – Labor Day

22nd Annual Japanese Festival

10 a.m. to 10 p.m. Saturday & Sunday, 10 a.m. to 5 p.m. Monday. Celebrate all the color, pagentry, and traditions of Japan, featuring tours, processions, arts and crafts, music, dancing, food, the Candyman, and four performances by Hawaii Matsuri Taiko drummers. Admission: $2 for members, $6 non-members, $4.50 seniors age 65 and over. Children ages 12 and under are admitted free and must be accompanied by an adult. Some festival programs require tickets that must be purchased separately the day of the performance. Call 577-9400, or 1-800-642-8842, for more information.

September 12 Saturday

The Healing Garden: Using Horticulture as a Therapeutic Tool

8:30 a.m. to 4 p.m. Ridgway Center and Kemper Center. Explore the benefits and potential of gardening as therapy for youths, the elderly, and the disabled. Although geared toward professionals, this workshop is for anyone interested in improving the quality of life and enhancing well-being. $38 members, $48 non-members. Call (314) 577-9443 for information and registration.

September 12 & 13
Saturday & Sunday

Federated Garden Clubs East Central District Show

Noon to 5 p.m. Saturday, 9 a.m. to 5 p.m. Sunday, Orthwein Floral Hall. Free with Garden admission.

September 16 Wednesday

Members' Preview: Fall Bulb & Gift Sale

5:30 to 7:30 p.m., Garden Gate Shop. A special "first look" at the fall sale, featuring 20% off for members.

September 17 – 20
Thursday – Sunday

Fall Bulb & Gift Sale

In the Garden Gate Shop.
See page 19.

September 23 Wednesday

Photographs by Sherman LeMaster

9 a.m. to 5 p.m. daily through November 18, Monsanto Hall. Free with Garden admission.

September 26 Saturday

"Celebration of Life"

8 a.m. to 2 p.m., Ridgway Center.

September 19 Saturday

Celebrate Prairie Day

10 a.m. to 4 p.m. at Shaw Arboretum. Co-sponsored with the Missouri Department of Conservation. This annual celebration of our prairie heritage is held at the Arboretum for the third straight year. Activities are centered at the Arboretum's 75-acre recreated tall grass prairie. Admission is free to all.

Prairie Tours
Live Bison
Old Time Music
Storyteller
Spinners
Weavers
Craftspeople
Frontier Games
Living History Characters
Archaeologist
Flint Knapper

Prairie Seed for Sale by Native Plant Nurseries
Insects, Reptiles, Amphibians, and Birds on Display
Buffalo Burgers
Homemade Baked Goods
Old Fashioned Root Beer
Kettle Corn
& More!

A special event for seniors, co-sponsored by the Garden and AARP. Tai Chi and Shriner Clown demonstrations, attendance prizes, fashion show, cowboy poet, storytelling, blood pressure screening by St. John's Mercy Hospital, displays on interesting things to do and places to visit, and more. Free with regular Garden admission.

September 26 & 27
Saturday & Sunday

Dahlia Society of Greater St. Louis Sale

Noon to 5 p.m. Saturday, 9 a.m. to 5 p.m. Sunday. Orthwein Floral Hall. Free with Garden admission.

October 3 & 4
Saturday & Sunday

"Best of Missouri" Market

9 a.m. to 5 p.m. daily. 7th annual market features many new vendors. See page 17.

October 6 Tuesday

Conservation Forum

5 to 10 p.m., The Living World, St. Louis Zoo. The International Center for Tropical Ecology, the Garden, the Saint Louis Zoo, and the Missouri Chapter of The Nature Conservancy present the second annual forum of presentations and displays by leading St. Louis conservation organizations. Speakers include Dr. Amy Vedder, director of the Africa Program, Wildlife Conservation Society; Dr. Brien Meilleur, president and executive director of the Center for Plant Conservation; and Dr. Alan Templeton, trustee of the Missouri Chapter of The Nature Conservancy. Tickets are $7.50 per person. Supper available by advance reservation, $7.50 per person. Order tickets from Bernadette Dalton, ICTE, University of Missouri-St. Louis, 8001 Natural Bridge Road, St. Louis, MO 63121, or call (314) 516-6203.

October 17 & 18
Saturday & Sunday

Gateway West Gesneriad Society Show

9 a.m. to 5 p.m. daily, Orthwein Floral Hall. Free with Garden admission.

October 24 & 25
Saturday & Sunday

Mid-America Regional Lily Society Sale

9 a.m. to 5 p.m. Saturday, 9 a.m. until sold out on Sunday, in the Beaumont Room. A great source for the latest new hybrids and some of the best hardy *Lilium* bulbs for this climate. Free admission.

October 25 Sunday

Arts and Treasures from Latin America: Peru 1998

11 a.m. to 5 p.m. A new event celebrates the art and culture of the Peruvian community in St. Louis and highlights the scientific research that links the Garden and Peru. Festivities include performances of native Peruvian folk music, the Peruvian Folkloric Dancers, displays of ethnic dresses and ceramics by Peruvian artists, films about the Peruvian rainforest, and authentic food. Free with Garden admission.

Members' Days

On Members' Days, Garden members receive free tram rides, additional discounts in the Garden Gate Shop, and 10% off in the Gardenview Restaurant.

September 17 Thursday

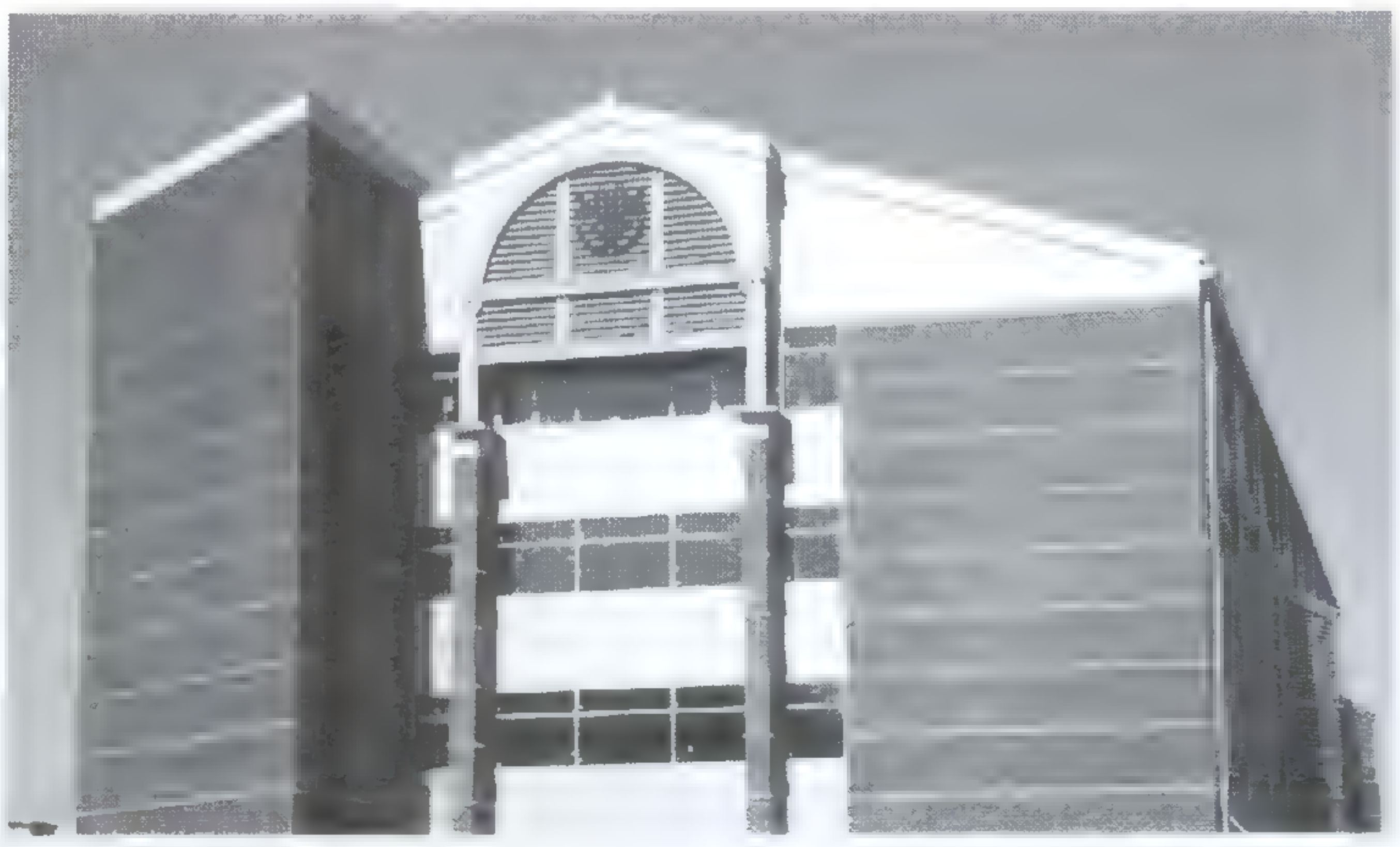
"Putting Your Garden to Bed"

11 a.m., Shoenberg Auditorium. June Hutson, supervisor of the demonstration gardens at the Kemper Center, tells everything you need to know to get plants safely through the winter. Your trees, shrubs, and perennials will thank you for attending! Also learn about fall planting techniques for bulbs to create a gardenful of colorful blooms next spring.Stop by the Garden Gate Shop after the lecture for the Fall Bulb & Gift Sale, with 20% off for members. The lecture is free, for Garden members and their guests only. Seating is on a first-come, first-served basis.

October 14 Wednesday

"Following Henry Shaw Through Italy"

11 a.m., Shoenberg Auditorium. John Karel, director of Tower Grove Park, presents a slide lecture of his recent travel and research in Italy with the Friends of Tower Grove Park. Discover how Italian art and architecture influenced Henry Shaw's design of the Park in the 19th century. The lecture is free, for Garden members and their guests only. Seating is on a first-come, first-served basis.



October 15 Thursday

Special Members' Open House at The Monsanto Center

5:30 to 7:30 p.m., 4500 Shaw Boulevard. A special opportunity for Garden members to tour our new research facility, The Monsanto Center. If you missed it last spring, be sure to join us this fall! See this state-of-the-art building, including the Garden's world-renowned herbarium and library. Enjoy a self-guided tour, with Garden research staff on hand to answer questions, and even make your own herbarium specimen. Cash bar. For more information, call (314) 577-9500.

Members

CLIFF WILLIS

Enjoying temptation are (from left): Jeff Hutchens, Claire Halloran, Dorothy and Joe Kittner.

Below, left: Bob and Susie Schulte, Charles and Tina Dubuque.

Below: Virginia and John Howell.

"Temptation at the Garden"

THE YOUNG FRIENDS of the Missouri Botanical Garden welcomed 259 guests and signed up 42 new members during "Temptation at the Garden," an evening cocktail party on July 18. Special thanks for the successful evening go to the committee, chaired by Claire Halloran and Andy Dielmann.

We extend appreciation to the evening's sponsors: Anheuser Busch, Hereford Printing Resources, Mt. Pleasant Winery, Lohrs Distributing Co., RehabCare Group, and Y-98 FM. Thanks also go to donors for the evening: Café Mira, Café Provencale, Complements Spa, Dierdorf & Hart's, Kirkwood Material Supply, Inc., Mercantile Bank, Options Salon, Tali's, The Total Difference, and St. Louis Bread Company.

Young Friends Plan Parties for 1999

The Young Friends of the Missouri Botanical Garden invite you to join them for upcoming Young Friends' parties on February 6 and July 17, 1999. For information on how to join the Young Friends, please call the Membership Office at 577-9500.

Save the Date — November 4, 1998

"A Garden of Gems"

5 to 7:30 p.m., 9793 Clayton Road, Ladue. The Members' Board invite all Garden members and their guests to a wonderful evening featuring sparkling floral designs and beautiful creations by Antoinette's Fine & Antique Jewelry. The evening includes cocktails, refreshments, and drawings for lovely jewelry prizes. Tickets start at $30 per person and are fully tax deductible. Please call for reservations by October 30, 1998: (314) 577-9500.

Thanks to "Garden Photography" Donor

Our special appreciation to City Photo of St. Louis for their support of our recent Members' Day program.

Limited Edition for Sale —

"Prairie Dog" by Robert Lee Walker

Now you can own a special memento of the Garden, an exact replica of Robert Lee Walker's charming Prairie Dog sculpture from the Kemper Center for Home Gardening. Only 24 of these delightful bronzes were cast. Each prairie dog stands 12 inches high on a handsome wood base and is priced at $1,000. For information, please call the Development Office, (314) 577-5120.

Past Presidents of the Members' Board

Helen Lewis Bixby

When Helen Lewis Bixby began volunteering at the Garden in the early 1950s, she was already an active member of three different garden clubs. Her skills were put to good use at the Garden, with tasks that included pruning in the Gladney Rose Garden and weeding in the Mausoleum Garden, where her son helped to paint the iron fence. She joined the Friends organization and in 1967-68 served as its president.

"We used to hold our meetings in the Museum Building," Mrs. Bixby recalled. "Jane Neidringhaus (president 1964-65) appointed me chairman of the Shop, which was on the second floor of Tower Grove House at that time, and we did everything, including the vaccuming!"

During Mrs. Bixby's term as president, the Board held a benefit party with a luau theme and sponsored a trip to visit private gardens in Brazil, led by Garden horticulturist Lad Cutak. Mrs. Bixby also arranged for the Garden Club of St. Louis to sponsor a tour of the Channel Islands to benefit the Garden.

Mrs. Bixby has been an active volunteer all her life with many St. Louis organizations. She held several posts with the Garden Club of America and still attends meetings of the Garden Members' Board as often as possible.

She said, "I have been connected to the Missouri Botanical Garden most of my adult life. It is such a joy, everyone there has been so pleasant to work with. Once involved, a person is forever interested."

New Vendors

7th Annual "Best of Missouri" Market

Saturday & Sunday • October 3 & 4, 1998 • 9 a.m. to 5 p.m.

Admission

(Includes Garden admission): $2 members; $5 adults; $3 seniors age 65 and over; children age 12 and under free.

Sponsored By

GrandPa's, Commerce Bank, Coca-Cola, KMOX, Premier Communities Corp., NationsBank, Pershing Charitable Trust, Clifford Willard Gaylord Foundation, St. Louis County Farm Bureau,

AgriMissouri

Special Members' Preview

Saturday morning, 7 to 9 a.m. Come early for complimentary refreshments. FOR MEMBERS ONLY.

Crafts

Hand-Thrown Pottery
Willow Furniture
Carved Wooden Birds
Clay Tile
Dried Flowers & Wreaths
Decorative Ironwork
Soaps
Decorated Gourds
Custom Jewelry
Rock Art
Hand-Poured Candles

NEW this Year – Food Court

Barbeque
Homemade Salads
Jumbo Pretzels
Brats & Hotdogs
Soft Drinks & Beer

NEW this Year – Cooking Demonstrations

Straub's
Provisions

Specialty Growers

Bowood Farms
Missouri Wildflowers Nursery
Herbin' Center

Entertainment

SATURDAY
The Flying Mules,
10a.m. to noon
Rockhouse Ramblers,
12:30 to 3:30p.m.

SUNDAY
Clayton Youth Choir,
10:30a.m.to noon
Kirkwood Station,
12:30 to 3:30p.m.

Foods & Produce

Baked Goods
Candies
Cider
Salad Dressings
Fruit
Gift Baskets
Herbs
Honey
Meats
Mushrooms
Preserves
Popcorn
Relishes
Sauces
Wines
& Much More!

Kids' Corner

9a.m. to 5 p.m.
Alpacas
Clydesdales
Mizzou Barnyard
Milk-a-Cow Booth
Decorate a Pumpkin
Zuma Bead
The Magic House
Agricultural & Environmental Displays
Scholastic, Inc. – Children's Books & Characters

Entrances

Enter at Spink Pavilion on Tower Grove or the main entrance on Shaw Boulevard, where there will be direct access to the vendors' area from the parking lot. Additional parking will be available at Mullanphy School, 4221 Shaw, in Tower Grove Park, or at the Westinghouse parking lot at Vandeventer and McRee. Shuttle runs continuously between Tower Grove Park, the Garden, and the Westinghouse lot. For more convenient parking arrange a car pool, or take MetroLink and the new Garden Express shuttle direct to the Garden.

BEST of MISSOURI
MARKET

October 3 & 4 • 10 a.m. to 5 p.m.

The Historic Shaw Art Fair

The sixth annual art fair presented by the Shaw Neighborhood Improvement Association along Flora Place, one of the city's most historic and architecturally significant areas, right across the street from the Garden. Artists in this juried show compete for $3,500 in prizes. Works include painting, sculpture, drawings, photographs, prints, ceramics, textiles, glass, wood, jewelry, and mixed media. Admission: $3 adults, $2 for visitors to "Best of Missouri" Market.

At the Litzsinger Road Ecology Center

Ecological Restoration Corps

LAST SUMMER, 12 high school students had a terrific summer job, working on ecological restoration projects while learning about environmental science at Litzsinger Road Ecology Center. This is the third year for the four-week program.

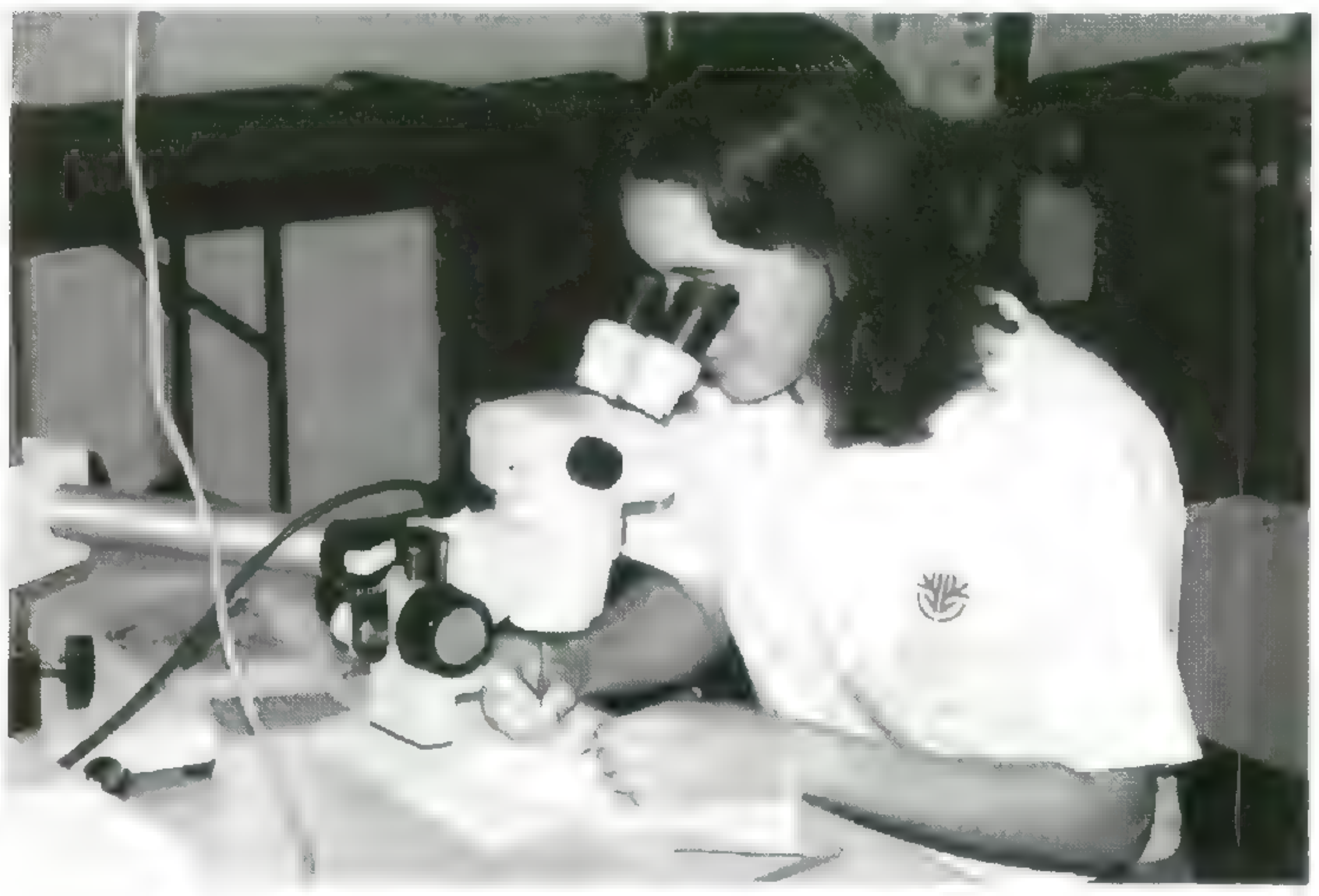
Students received a stipend for performing service projects, which included removing undesirable plant species from natural areas and assisting teachers with younger students in the Summer Science Academy.

In a series of field trips, the students visited the prairie restoration project and waste water treatment at the Metropolitan Sewer District Bissel Point Facility, the World Bird Sanctuary, the St. Charles Riverlands Project, the Wild Canid Survival and Research Center, a Union Electric power plant, Jefferson Smurfit Recycling Company, and the wetlands area at Shaw Arboretum. The students met with natural resource management professionals and environmental scientists, who discussed academic training and career opportunities in the public and private sectors.

Top right: Learning about waste water treatment at the MSD Bissel Point Facility. Bottom: Discovering botanical research in the library and herbarium at the Garden with Dr. Mick Richardson of the Research Division.

Conservation Interns – Working and Learning

Andrea Stone tends a bed of *Echinacea tennesseensis* in the conservation nursery at Shaw Arboretum.



Harvesting seeds from the tiny fruits of *Geocarpon*.

"LET'S get vertical!", exclaimed Lisa Klarich, a student at University of Missouri-St. Louis and a summer conservation intern at the Garden. Lisa, together with Andrea Stone of Webster University, was getting psyched to make a sixty-foot climb up a steep embankment in Franklin County, Kentucky, in search of the rare *Lesquerella globosa*, the globe bladderpod.

As a Participating Institution of the Center for Plant Conservation, the Garden engages in conservation, research and educational projects all aimed at preserving some of the rarest plants in the Midwest region. This summer, Lisa and Andrea, with Lorrie Rice, also a student at UM-St. Louis, and Sara Halpern, a University of Vermont student, worked as interns on a variety of projects related to the Garden's conservation mission.

Besides traveling the Midwest on collecting trips, all four interns worked on improving and maintaining the rare plant nursery at Shaw Arboretum. Each intern also completed an individual project. Andrea used a dissecting microscope to harvest seeds from fruits of the very tiny plant *Geocarpon*. Lisa developed pages for the Garden's Website on each of the rare midwestern species being maintained by the Garden — see www.mobot.org/CPC/netaxall.html#Missouri. Lorrie helped design and develop an exhibit on the natural communities of Missouri, to be housed in the Brookings Center, and Sara conducted germination tests and prepared newly collected seeds for long-term storage.

All of the interns were enthusiastic about their experience at the Garden. Lisa said, "The internship gave me valuable experience that applies to the real world." Lorrie added that one of the highlights for her was "being able to work with experts in the field of conservation."

The interns were not the only ones who appreciated their time spent here. The Garden's conservation program benefitted from the significant contributions made by Lisa, Andrea, Lorrie and Sara.

— Kimberlie McCue, Ph.D., MBG Conservation Biologist

GARDEN GATE SHOP

All proceeds from sales in the Garden Gate Shop benefit the Missouri Botanical Garden

Japanese Festival

- **Bonsai** — Plants, demonstrations and booksignings

  Herbal Bonsai: Practicing the Art with Fast-Growing Herbs, by Richard Bender, Stackpole Books, $16.95. The author will demonstrate the art of bonsai and sign books Saturday, 10 a.m. and 2 p.m.; Sunday, 10 a.m. and 2 p.m.; and Monday at 11 a.m.
- **Origami** — Carol Bachman and Richard Frankenberger of Origami Greetings will be on hand with their lovely paper greeting cards.
- **Japanese Gifts** — Authentic Shoyeido incense, blended with traditional recipes and ingredients, 35 sticks per box. Moss Garden: $4, Autumn Leaves: $3, Cherry Blossom, $5. Bamboo chimes, starting at $10.

Members' Days

September 17

Visit the Fall Bulb & Gift Sale and receive the 20% members' discount.

October 14

"Following Henry Shaw through Italy"
Members receive an additional five percent discount on all books on the gardens of Italy.

New this Fall

- Silver Seasons jewelry comes with information on the plant featured in the design: ginkgo, coffee, bamboo, etc. $30–200.
- Eastern Shore Tea Comes in a ribboned bag with a resuable tea bag, $6. Find nearly 20 different varieties of teas, each with an interesting story.
- The Thymes Limited — Personal Care Products, Oolong and Orange Blossoms, Green Tea and Ginkgo Leaves, Jasmine and Lotus Flower, $4.50–15.50.
- Aromatherapy — Botanical incense for indoors and out, $4.50–27.

Books —

Missouri Wildflowers

By Edgar Denison, the new fifth edition from the Missouri Department of Conservation, $14.
This essential field guide has been updated and features many new photographs. Already a bestseller!

Flora of China Illustrations, Volume 17, Verbenaceae through Solanaceae

From MBG Press and Science Press, Beijing. The first volume of illustrations to accompany the *Flora of China* text volumes. Beautiful, technically accurate drawings reproduced from the *Flora Reipublicae Popularis Sinicae*, never before widely available. Price to be announced.

Just In —

1999 Missouri Botanical Garden Calendar

1999
Missouri Botanical Garden Calendar

See the Garden in all its seasonal beauty, featuring colorful new photographs by Jack Jennings and a poster on the Garden's bryology research. 16 by 12 inches, $11.95.

Fall Bulb & Gift Sale

20% Discount for Members

New Members' Evening Preview:
Wednesday, September 16, 5:30 to 7:30 p.m.

Members' Preview Days:
Thursday & Friday, September 17 & 18,
9 a.m. to 6:30 p.m.

Sale Opens to Public:
Saturday & Sunday, September 19 & 20,
9 a.m. to 5 p.m.

In the Orthwein Floral Hall:

"In the Garden" Native plants blooming in the Garden this fall: New England aster, *Aster novae angliae* • purple coneflower, *Echinacea purpurea* • pink turtlehead, *Chelone obliqua* • Joe Pye weed, *Eupatorium purpureum* • 1999 Perennial Plant of the Year, *Rudbeckia fulgida* 'Goldstrum'. • New Bulbs that will be on view in the Garden next spring: In the Butterfly Meadow: *Muscari armeniacum* • At the Lehmann Gazebo, *Narcissus* 'Gold Ducat' • In the Climatron vista, *Tulipa* 'Christmas Marvel' and 'Purple Prince' • At the Ridgway Center, *Tulipa* 'Mona Lisa'. Plus — Ornamental grasses, hostas, hardy ferns, and MBG "Plants of Merit."

In the Garden Gate Shop

Natural Baskets • EZ-Grip Gloves • Houseplant Tool Kits • New Handpainted Dinnerware from Ceramica de España, plus Handpainted Placemats in Matching Colors • New Containers and Hanging Baskets • Books • Tools • Stationery & More!

James Trager collecting seed of native plants at Shaw Arboretum.

Arboretum Naturalist Receives Award

DR. JAMES TRAGER, naturalist at Shaw Arboretum, has been honored with the annual Plant Stewardship Award of the Missouri Native Plant Society. Dr. Trager was recognized for his ecological restoration projects and education programs interpreting the native plant communities at the Arboretum.

Dr. Trager said, "Just 200 years ago, Missouri was cloaked in vast prairies, extensive tracts of park-like oak woodlands, rich floodplains and tall whispering pine forests. These habitats were home to wolves and bison, cougars and elk, and huge numbers of other animal species, nurtured by upwards of 2000 species of plants.

"The people who lived here two centuries ago managed the land with selective cutting and gathering of plants and animals and had only a small acreage of cropland. They also made extensive use of fire for driving game, for stimulating new growth of useful plants and for keeping the landscape open.

"At Shaw Arboretum, we strive to recreate as much of the look, feel and biological diversity of that earlier time as our relatively small fragment of the landscape can support. It is an honor to be recognized for our efforts."

The Missouri Native Plant Society is a not-for-profit organization formed in 1979 to promote the study and enjoyment of the flora native to Missouri. The membership includes both professional and amateur botanists. For more information, write the Missouri Native Plant Society, P.O. Box 20073, St. Louis, Missouri 63144.

Volunteers Needed for Seed Collecting at Shaw Arboretum

Seed gathering is an important part of ecological restoration at Shaw Arboretum and has been a popular activity with volunteers for many years. This fall, the staff will plant nine new acres of prairie near the wetland area. The seed for the project will be gathered from the Arboretum's prairie plants in October and November.

Seed collecting is scheduled for three Saturdays: October 17 and 31, and November 14, 8:45 a.m. to 4 p.m. Seed collecting will also take place every Friday in October. Please call at least 24 hours in advance to let the staff know you will participate: (314) 451-3512.

AABGA Honors Science Education Program

In June, the Midwest Public Garden Collaborative received the 1998 Award for Program Excellence from the American Association of Botanical Gardens and Arboreta for its "Partners for Growing Science" program.

The award was shared by the five institutions that make up the Collaborative. They are the Chicago Botanic Garden, The Holden Arboretum, the Minnesota Landscape Arboretum, the Missouri Botanical Garden, and The Morton Arboretum. The program, which was funded by the National Science Foundation, helps gardens serve as partners with schools to improve science education, using a curriculum called "Discovery Units."

Behind the Scenes

New Marketing and Communications Director

TIM PARKER

BRENDA JONES has been named director of marketing and communications at the Garden. Before joining the Garden in July, she was executive director of the Missouri African-American Cultural Initiative. She is a former community relations manager of the Saint Louis Symphony Orchestra.

"Brenda Jones brings to the Garden an extraordinary intelligence and sensitivity," said Peter H. Raven. "She has a knowledge of non-profit organizations and a wealth of contacts in the region that will be a great benefit. I am confident she will transfer to the Garden's many and broad constituencies the successes she has achieved in her other positions. Her first priority will be to help us develop a marketing strategy for the Garden and the Arboretum."

In 1995, Ms. Jones developed the Missouri African-American Cultural Initiative, a state-wide arts funding agency, to serve constituents in underserved and often isolated communities throughout the state. She built partnerships with St. Louis institutions, including the Science Center, the Art Museum, Dance St. Louis, the Symphony, and University of Missouri-St. Louis. As community relations manager of the Symphony, she founded and directed In Unison, a membership program that dramatically altered the organization's relationship to African-Americans.

Ms. Jones, a native of St. Louis, received her B.A. from University of Missouri-St. Louis and an M.A. in Communications from Temple University in Philadelphia. She participated in Leadership St. Louis in 1993-1994 and has received a number of awards recognizing her work.

Ms. Jones said, "I am very pleased to become part of what is known to be one of the world's most important institutions for botanical research, environmental education, and horticultural display. This is an exciting time because the Garden is looking for ways to build on its already phenomenal success in providing services to many local, regional, national, and international communities. I look forward to working with a very talented and dedicated staff."

Charles M. Russell Sculptures on Display in the Library

THREE BRONZES by the famed western artist Charles Marion Russell are on permanent display in the Garden library at The Monsanto Center. The sculptures are a gift of longtime friends of the Garden, Mr. and Mrs. Lyle S. Woodcock.

The late Lyle Woodcock collected and studied American art for more than fifty years. He had a special interest in Charles M. Russell, who was born in St. Louis in 1864, and wrote several articles on Russell's life and work. In 1984 the Garden held an exhibit of 40 Russell sculptures in the Ridgway Center, where Mr. Woodcock presented the keynote lecture

T M PARKER

The three bronzes on display in the library are "Peace," a figure of a Native American man, "Nature's People," a deer and a bird on a marble base, and "Smoking Up," depicting a cowboy and his horse in the "wild west." Each is a splendid example of the vivid, dramatic style of this leading artist of the American frontier.

Patricia Arnold, director of development, said, "We are very grateful to Mr. and Mrs. Woodcock for sharing these wonderful pieces of art with us, making it possible for so many people to enjoy them."

The beautiful Blue Boulder Cascade, "Seigan-no-taki," in the Japanese Garden, was a gift of the Greensfelder Foundation in 1976.

In Memoriam

Edward B. Greensfelder, Jr.

FRIENDS of the Garden were saddened by the death of Edward B. Greensfelder, Jr., on June 9 at age 61. He was the son of Edward B. Greensfelder of St. Louis.

Mr. Greensfelder, a lawyer, grew up in St. Louis and lived in Washington, D.C. His involvement at the Missouri Botanical Garden included administering the trust established by his uncle, the late Albert P. Greensfelder. The Blue Boulder Cascade in the Japanese Garden was a gift of the foundation in 1976. In March, 1998, the Greensfelder Foundation co-sponsored a national conference on economics and the environment at the Garden, "Managing Human-Dominated Ecosystems."

In 1979 the foundation established the Greensfelder Award at the Garden in memory of Albert P. and Blanche Y. Greensfelder. The Greensfelder Award honors individuals who have made substantial contributions to promote a better environment through conservation and urban improvements.

Past recipients of the Greensfelder Medal include Rodolphe Spichiger, director of the Conservatoire et Jardin Botaniques in Geneva, Switzerland; Richard H. Pough, author of the Audubon Bird Guide and impetus behind The Nature Conservancy; Harriet Rodes Bakewell, St. Louis landscape architect; Roger Tory Peterson, renowned artist and ornithologist; Russell E. Train, president of World Wildlife Fund; Roberto Burle Marx, Brazilian landscape architect and designer; and August A. Busch, Jr., for establishing Grant's Farm and Busch Wildlife Preserve for the public.

Peter Raven said, "Edward Greensfelder was a great friend of St. Louis, and we are deeply grateful for his many fine contributions. He will be sorely missed, but here at the Garden the work of the Greensfelder Foundation will go on."

Shown at the site of the new German Strassenfest Garden (from left): Hermann Eisele, Michael Wendl, Peter Raven, Barbara Betancourt, John Hediger, and John Wittenberg.

New German Strassenfest Garden Announced

THE ST. LOUIS STRASSENFEST CORPORATION has pledged $250,000 to create a new display at the Garden, to be named the German Strassenfest Garden. This is the largest donation ever made by the Strassenfest Corporation.

The German Strassenfest Garden will encompass the area south of the John S. Lehmann Building, linking the area south of Tower Grove House to the English Woodland Garden. Dr. Raven praised the new garden as "a wonderful living tribute to the rich heritage brought to the St. Louis area by German immigrants and their descendants."

Michael Wendl, president of the St. Louis Strassenfest Corporation, and members of the board presented a check for $150,000 to Dr. Raven on Monday, August 3, at the Garden.

A feature of the new Strassenfest Garden will be a bust of Dr. George Engelmann, a German immigrant and physician who came to the St. Louis area in the 1830s. Englemann, a noted botanist, was a principal advisor to the Garden's founder, Henry Shaw. Engelmann encouraged Shaw to include a scientific division in his garden, laying the foundation for the Garden's research program

The bust of Engelmann will be created by the sculptor Paul Granlund, whose other works at the Garden include the statue of Shaw facing Tower Grove House and the bust of Linneaus near the Lehmann Building.

The not-for-profit St. Louis Strassenfest Corporation contributes annually to educational, civic, cultural, and charitable organizations. Over 65 non-profit organizations participate in the annual Strassenfest to earn funds for their own programs. Started some 35 years ago in Columbia, Illinois, the Strassenfest marked the end of the wheat harvest and was a way of bringing together local farmers to celebrate. In 1972, the festival was moved to St. Louis where it has become an annual community event and the largest German festival in mid-America.

Japanese Garden Paths To Be Completed

VISITORS this summer have admired and enjoyed the handsome new aggregate pathway along the west side of the Japanese garden. It was replaced last spring thanks to a 1997 grant of $250,000 from the State of Missouri. This summer, the State announced an appropriation of $500,000 to complete renovations on the rest of the path. The improvements include drainage work and replacement of worn surfaces.

The Japanese garden, *Seiwa-en*, is a major St. Louis tourist attraction. The 14-acre display is the largest traditional Japanese garden in North America. Dedicated in 1977, Seiwa-en grew from an idea proposed by the Japanese-American Citizens' League.

The creation of the Japanese garden was made possible through the collaboration of many private and public agencies and organizations, including the State of Missouri and the City of Nagano, Japan. It is the centerpiece of the Garden's annual Japanese Festival, which annually attracts more than 30,000 people.

TIM PARKER

At right: In May, the Garden hosted a luncheon in honor of our State Representatives and members of the Missouri House Appropriations Committee. Guest of honor was The Honorable Steve Gaw, Speaker of the Missouri House of Representatives, on his first visit to the Garden. From left: Rep. Patrick Dougherty, Rep. Rita D. Days, Dr. Peter H. Raven, Speaker Gaw, Rep. May Scheve, Rep. Bob Hilgemann, and David W. Kemper, president of the Board of Trustees.

Trustees Recognized for Service

IN recent months, four members of the Board of Trustees have been honored for their years of service to the Garden.

Warren Shapleigh — 40 Years

Since his first year on the Board of Trustees in 1958, Warren Shapleigh's enthusiasm and unfailing support have helped the Garden achieve remarkable change and growth. Through his service on the Finance Committee and other activities of the Board, he has made significant contributions to planning for the Garden's future.

Mr. Shapleigh, a native of St. Louis, is president of the Spencer T. and Ann W. Olin Foundation and is a retired president of Ralston Purina Company. The beautiful Shapleigh Fountain at the Garden was named in memory of his father.

Recently, Mr. Shapleigh's work at the Garden has resulted in several significant gifts that contributed to the successful completion of the Partnership Campaign. He also took a particular interest in the Chinese garden and gave the viewing area in memory of his mother.

Lucianna Gladney Ross — 20 Years

Before she was elected a lifetime member of the Board in 1978, Mrs. Ross was active at the Garden as a volunteer docent for many years and served as co-chairman of the Guides from 1973 to 1975. A native St. Louisan, she was the first woman elected to the Garden's Board of Trustees in 119 years.

Mrs. Ross has been instrumental in the Garden's development over the past two decades. She has also been a leader in the historical restoration of Kimmswick, Missouri, and served as a commissioner of the St. Louis Art Museum, a consultant for the Landmarks Association, and a trustee of John Burroughs School. In 1977 she was named a Woman of Achievement by the *St. Louis Globe-Democrat*.

John H. Biggs — 15 years

John Biggs joined the Board of Trustees in June, 1983, and was elected president in January, 1984. He served in that capacity for five years during a period of unparalleled growth and activity at the Garden.

During Mr. Biggs's presidency, the Board began planning for the expanded programs and expenditures made possible by the property tax support approved by voters in 1983. The trustees also launched a challenging and successful $16 million capital campaign.

Mr. Biggs, a native St. Louisan, is a former president of Centerre Trust Company and vice chancellor for administration and finance at Washington University. He left St. Louis in 1989 Louis to head TIAA/CREF, the leading pension and insurance provider serving educational and non-profit institutions.

James S. McDonnell III — 15 Years

James McDonnell joined the Board of Trustees in 1983. He was elected a Lifetime Trustee in 1996.

Mr. McDonnell has provided leadership and guidance in strengthening the financial stability of the Garden during his tenure on the Finance Committee and as chairman of the Investment Committee. His commitment to the Garden, and the outstanding support of the James S. McDonnell Foundation, have made possible many of the most significant developments at the Garden in recent years, including the Kemper Center for Home Gardening, the Flora of China project, and the recently completed Partnership Campaign.

TIM PARKER

James McDonnell

A native of St. Louis, Mr. McDonnell has had a distinguished civic and philanthropic career of service to many St. Louis institutions. He is retired from the McDonnell Douglas Corporation.

TIM PARKER

Frank Stella (right), Peter Raven (left), and guests admire the artist's sculpture "Stubb's Supper" (1988), installed near the Blanke Boxwood Garden in July.

"Stubb's Supper," by Frank Stella

Frank Stella, one of the leading American artists of this century, was on hand for the installation of his sculpture, "Stubb's Supper," at the Garden on July 13, 1998. The piece is on loan from the Greenberg Van Doren Gallery of St. Louis.

"Stubb's Supper" is a monumental work, ten feet by seven, in cast bronze, cold steel, stainless steel, and cast stainless steel, embellished with vivid streaks of red paint. The 1988 sculpture is one of a series of 135 works Stella based on Herman Melville's *Moby Dick*, one for each chapter. Inspired by Chapter 64, "Stubb's Supper" uses abstract forms to suggest the story of the sailor Stubb's determination to feast on a portion of a slaughtered whale.

Frank Stella is often called the "Father of Minimalism" for his famed "Black Paintings," which he produced in the late 1950s shortly after graduating from Princeton University. His work has evolved and changed dramatically over the years, often combining painting with sculpture and using abstract forms to convey an image or narrative.

TRIBUTES

MAY – JUNE 1997

IN HONOR OF

Steven Joseph Ackerman
Mr. Rick Halpern
People We Owe Gratitude
Mr. and Mrs. Charles Matthews
Mrs. Patty Arnold
Mr. and Mrs. Oscar J. Conrad, Jr
Ms. Carol Flannery Avins
Mr. and Mrs. Dennis C. Donnelly
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New Vendors

7th Annual "Best of Missouri" Market

Saturday & Sunday • October 3 & 4, 1998 • 9 a.m. to 5 p.m.

Admission

(Includes Garden admission): $2 members; $5 adults; $3 seniors age 65 and over; children age 12 and under free.

Sponsored By

GrandPa's, Commerce Bank, Coca-Cola, KMOX, Premier Communities Corp., NationsBank, Pershing Charitable Trust, Clifford Willard Gaylord Foundation, St. Louis County Farm Bureau, AgriMissouri

Special Members' Preview

Saturday morning, 7 to 9 a.m. Come early for complimentary refreshments. FOR MEMBERS ONLY.

BEST of MISSOURI
MARKET

WEEKEND OF FAMILY FUN

Missouri Botanical Garden BULLETIN (ISSN 0026-6507)
Post Office Box 299
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Missouri
Botanical
Garden

NOVEMBER/
DECEMBER
1998

HOLIDAY FLOWER SHOW
Members' Preview Party November 24

VOLUME LXXXVI
NUMBER SIX

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

AS this issue went to press, we received word that the Dana Brown Foundation has awarded a grant of $1 million for a new overnight facility at Shaw Arboretum. This will be a wonderful addition to our education programs, and I extend our warmest appreciation to the Dana Brown Foundation for this splendid gift. Please watch for more on this major new development in the January/February *Bulletin*.

On behalf of everyone at the Garden, I also wish to thank David Kemper, president of our Board of Trustees, and the William T. Kemper Foundation for their magnificent challenge grant to support the endowment of the Kemper Center gardens. This kind of leadership inspires all of us to plan and work toward ensuring the Garden's financial strength for the future. Also in this issue, on page 8 we announce a new membership program, Corporate Partners, which has been launched to strengthen our ties with the St. Louis business community.

The Garden has always been part of a larger community — the community of people who visit or work here, of St. Louisans who take pride in our city, of scientists who work with us, and of the world itself, as we seek to understand and protect the earth's threatened natural resources. We are also an integral part of our local neighborhood and work closely with the people who live and own property surrounding the Garden. Our mutual goal is to promote a clean, safe, and attractive district for everyone who lives, works, and visits this area. We have recently begun community-based planning to support this process, and a report on the initial stages appears on pages 6 and 7.

— *Peter H. Raven, Director*

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400

24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522

You will need a touch-tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401

Information on jobs and volunteer opportunities at the Garden is available with a touch-tone phone. Listings are updated bi-weekly, or see the Garden Website, below.

Horticultural Answer Service: 577-5143

9:00 a.m. to noon, Monday through Friday.

Master Composter Hotline: (314)577-9555

9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:
http://www.mobot.org/

Mailing Address:

Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours

9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 40 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. Admission is free for Garden members. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House open 10 a.m. to 4 p.m. daily, closed on Mondays. For information call (314) 451-3512.

The Missouri Botanical Garden and its Arboretum are for the enjoyment and education of visitors. To ensure the fulfillment of its mission and the enjoyment of its grounds, the Garden does not permit the circulation of petitions, picketing or other kinds of demonstrations on its grounds or the grounds of the Arboretum.

Organizations and individuals who wish to circulate petitions or to demonstrate, picket, or conduct similar activities will be directed to the public streets and sidewalks outside the grounds and directed not to block access or egress or in any other way present a hazard to visitors or others.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this Bulletin and mail to:

Bulletin
Missouri Botanical Garden
P.O. Box 299
St. Louis, MO 63166-0299

Your Name: ______________

Old Address:

Street ______________

City ______________

State ______ Zip ______

New Address:

Date effective: ______________

Street ______________

City ______________

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On the Cover

Tropical foliage in the Climatron is a colorful sight all winter long.
– Photo by Jack Jennings

Editor
Susan Wooleyhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members. For information, please call (314) 577-5118

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MARY ANN KRESSIG

The Kemper Center demonstration gardens are one of the most popular attractions with visitors.

KING SCHOENFELD

Kemper Foundation Challenge Grant

THROUGH THE LEADERSHIP of David W. Kemper, president of the Garden's Board of Trustees, the William T. Kemper Foundation has issued a $500,000 challenge to Garden members to help endow the William T. Kemper Center for Home Gardening. The Foundation, which made the naming gift for the Center in 1989, will match all new donations directed to the Kemper Center and its outdoor demonstration gardens. The challenge will provide up to a million dollars for programs and upkeep of the facility.

This magnificent gift takes a farsighted approach to providing for the long-term success of the Garden and ensuring its financial stability well into the next millennium. Patricia Arnold, director of development, said, "Through their naming gifts for the Home Gardening Center and the Mildred Lane Kemper Terrace Garden, the Kemper family have provided wonderful support for developing this part of the Garden. We are very grateful to them, to the Kemper Foundation, and to David Kemper for taking the lead with this new challenge."

Why is endowment important? In many cases, original gifts for the 23 demonstration gardens covered construction and an initial endowment, but costs continue well beyond their creation. Every season, new plantings must be added and replaced, regular maintenance must be performed, staff and supplies must be provided. All of these costs will persist and increase over the years.

Beyond being a beautiful attraction, the Kemper Center is an unmatched educational facility. Its programs, offered in cooperation with the University of Missouri Extension Program, St. Louis Master Gardeners, and Gateway Greening, Inc., provide education in horticulture to thousands of adults and families throughout the entire St. Louis region every year.

For information on participating in the Kemper Challenge Grant, please call Patty Arnold at (314) 577-5120.

This farsighted gift will help to ensure programs and services well into the next millenium.

KING SCHOENFELD

***B**eautify and **S**implify your holiday season! Variety, free gift wrapping, delivery services.*

"The Shop at the Garden"

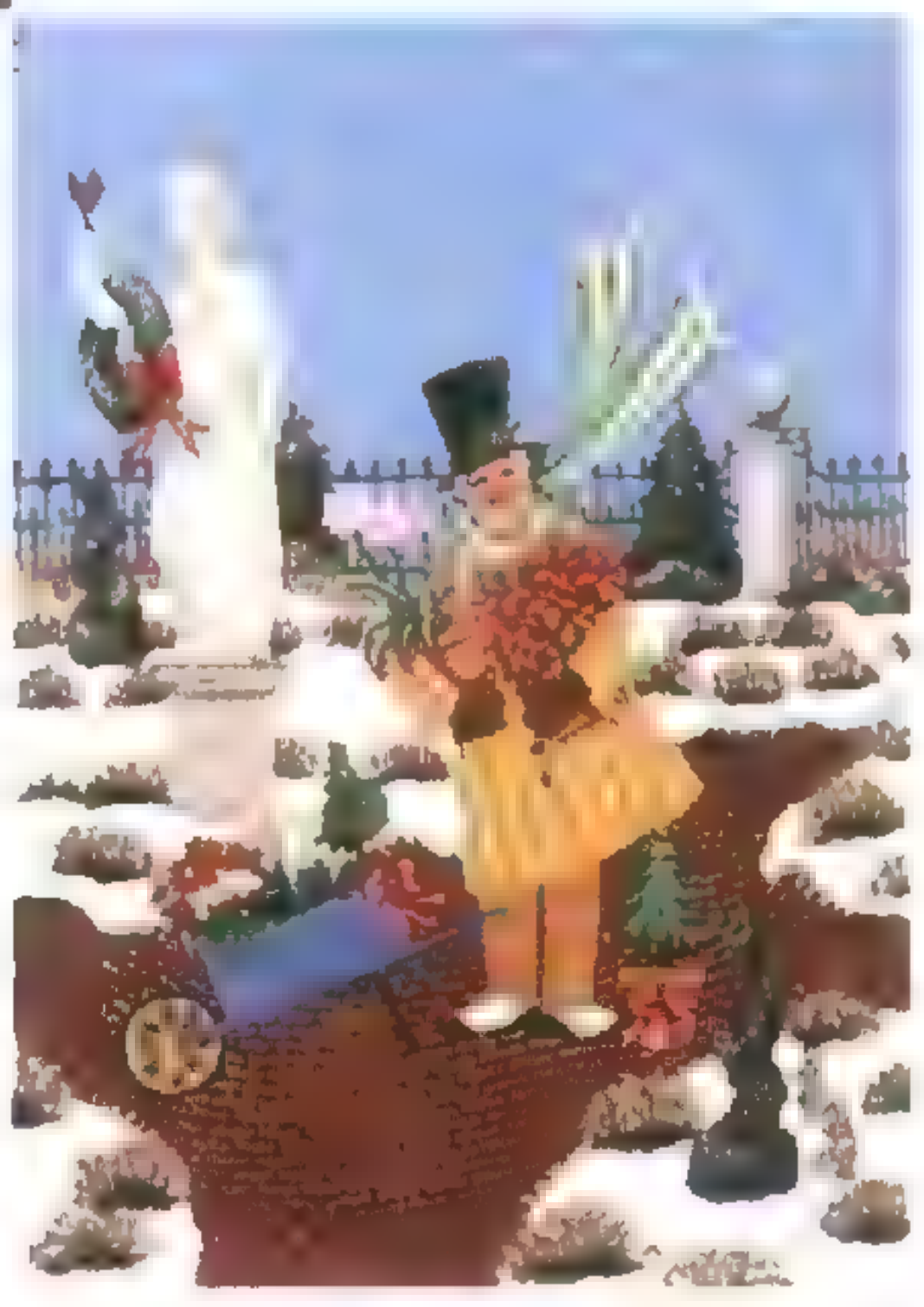
Elegant and unique gifts from around the world. Experience personalized shopping at the beautiful new Garden Gate Shop.

◀ Exclusive – One from the collection of exquisite Italian ceramics by Modigliani, available in St. Louis only at the Missouri Botanical Garden. 16" plate, $295

PLUS – Lots of Stocking Stuffers Under $25 for everyone on your list!

1999
Missouri Botanical Garden Calendar

1999 MBG Calendar – 16 × 12 inches, $11.95



1998 MBG Holiday Car.
Box of 12, $13.95

Garden Gate Shop

Missouri Botanical Garden
4344 Shaw Boulevard
(314) 577-5137

The Garden Web Site **<www.mobot.org>**

THE WORLD WIDE WEB is so much a part of our lives today, it seems incredible that five years ago few of us had even heard of it. The Garden's Web site was established in 1994, and today it attracts more than 13,500 users who "hit," or open, over 1,000,000 files a month.

Unless you were born within the last couple of decades, the Web can be an intimidating maze of interlocking sources of information. The Garden Web site is designed to be easy and fun to use, with lots of pictures that will almost make you feel you are visiting.

Here's a brief guide to all the useful things you will find when you click on the main headings of our electronic "table of contents," the home page at www.mobot.org.

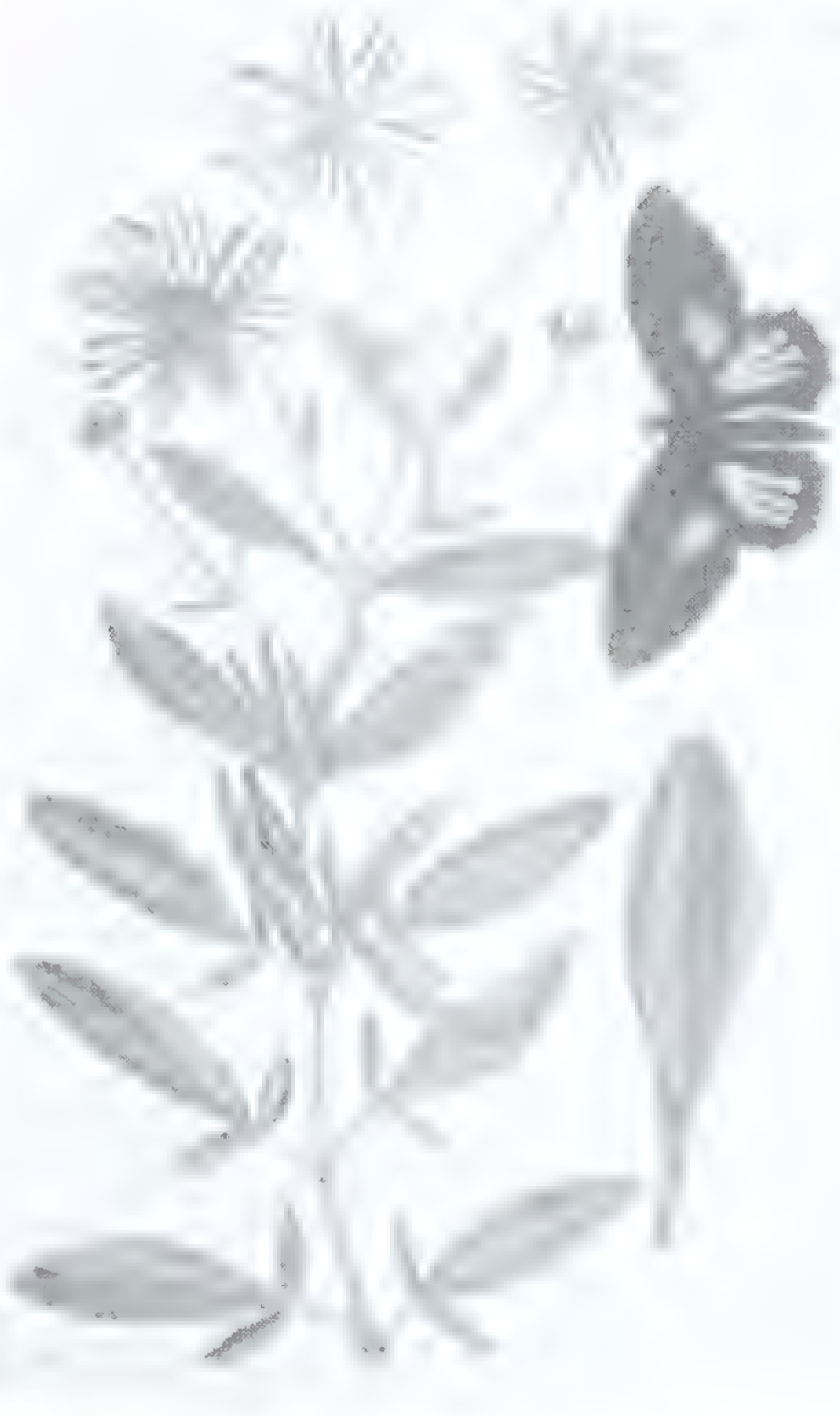
Highlights:
Visit the Garden in colorful photos and text without leaving your desk. Some current topics:

- **Experience Fall Splendor at Shaw Arboretum**
- **Frogs in the Brookings Center**
- **Photographic Tour – Seasons of the Garden**

Visitor Information:
Click on any of these items to find the latest on:

- **Calendar of Events**
  Up-to-the-minute listings of what's happening at the Garden and Arboretum.
- **Graduate Studies**
- **MBG Press**
  A complete list of scientific books and journals published at the Garden, and how to order.
- **Job Openings at MBG**
- **Just for Kids!**
  "Partners for Growing" and "What's It Like Where You Live?" Educational adventures by grade level.
- **Library**
  Visit the Garden's world-famous collection and view beautiful rare books available online.
- **Plants in Bloom**
  Don't ever miss the azaleas or the cherry blossoms again!
- **What's New**
- **W3TROPICOS**
  Visit the Garden's botanical database.
- **Links to Other Web Sites:**
  The Center for Plant Conservation, Missouri State Parks and Historic Sites, and more!

Left and below: Students and teachers learn to utilize the World Wide Web in the Arthur Andersen Computer Lab at the E. Desmond and Mary Ann Lee Education Center.



View Rare Books from the Garden's Collection
***Afbeeldingen van zeldzaame Gewassen*, by Nicolas Meerburgh. Published by Johannes le Mair, Leiden, 1775. The folio includes 50 hand-colored plates of plants and butterflies, with descriptions. Only three or four copies of this work are known to exist.**

Click on "Education:"

- **MBGNet**
  A world-wide learning community for kids and parents, with in-depth programs, instructions for classroom activities, and student resources.
- **Costa Rica Tour**
  A clickable map tour of the country's botanical work, plants and animals.
- **Exploring the Tropics**
  An overview of the ecology of tropical forests.
- **Classes, tours, and lots more!**

Click on "Horticulture:"

- **Garden Image Gallery**
  Tour the Garden in photographs.
- **HortLine**
  Quick Gardening Tips.
- **Courses and Lectures**
- **Integrated pest management**
- **Sculpture tour of the Garden**
- **Summer Internship Program**
- ***Victoria* water lilies**
- **And more**

Click on "Research:"

While most of the sites under Research are geared to scientists, you will find much of general interest. Travel around the world to locations where Garden scientists are doing research in Africa, Asia, Mesoamerica, South and North America.

GARDEN NEIGHBORHOOD

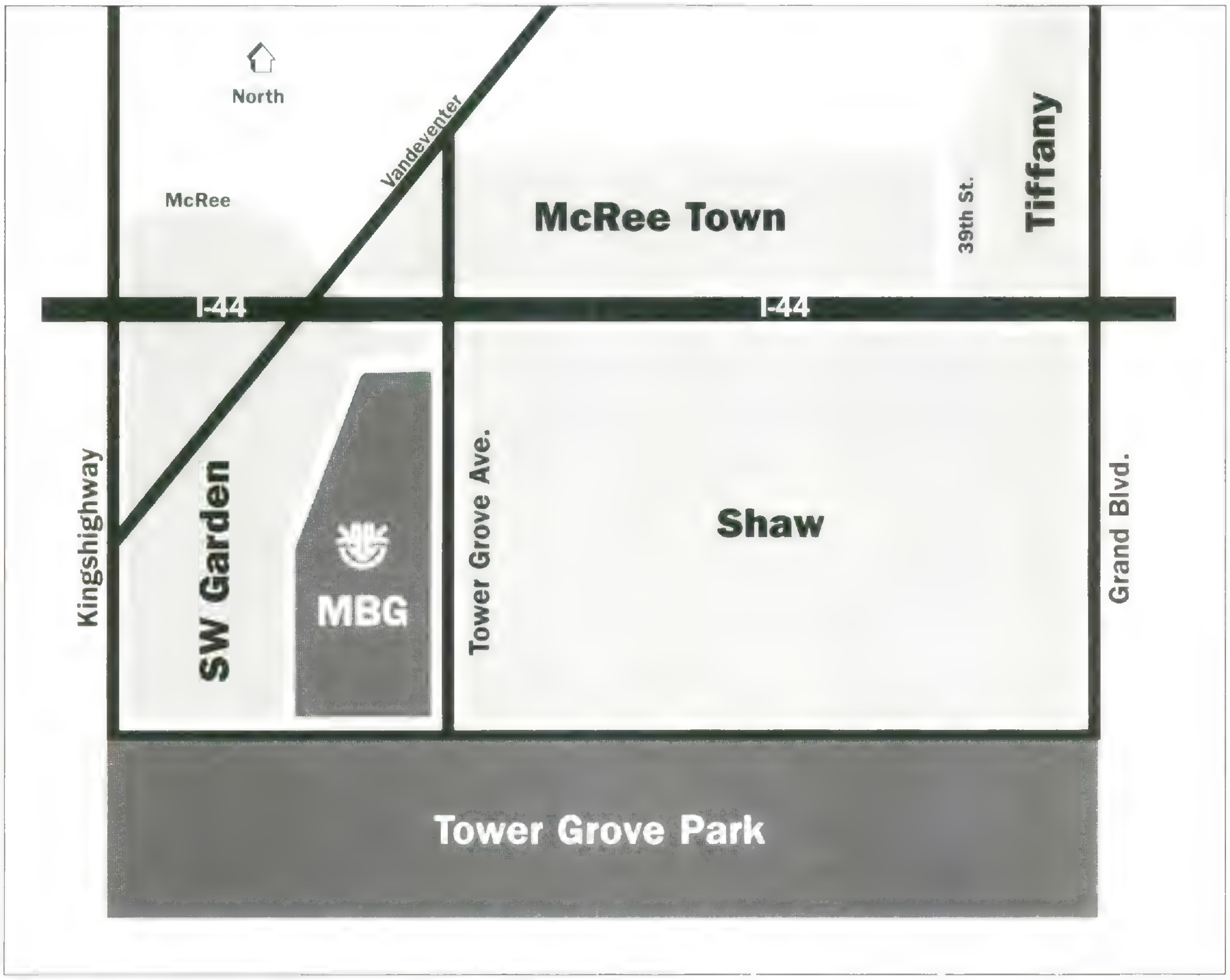
TIM PARKER

Shown in Paul Kohl Park at the corner of Tower Grove Avenue and Shaw Boulevard are neighborhood leaders (from left): George Robnett, Edward Roth, and Father Kenneth Brown.

Building Partnerships for a Strong Neighborhood

Community Planning

A REPORT on current efforts underway with the neighborhoods surrounding the Garden was presented recently to the Garden's Board of Trustees at the request of David W. Kemper, president of the Board. The report was introduced by Jonathan Kleinbard, deputy director of the Garden, and included talks by George Robnett, housing coordinator for McRee Town and the chair of the steering committee representing the four neighborhoods; Father Kenneth Brown, pastor of Saint Margaret of Scotland Parish; and Edward Roth, a longtime resident and former president of the Shaw Neighborhood Improvement Association. These three neighborhood leaders have been playing major roles in the planning process. The following is excerpted from their presentation.



IN APRIL, the Garden initiated community-based planning in McRee Town, Tiffany, Shaw, and the Southwest Garden, the four neighborhoods immediately adjacent to the Garden. The purpose of the effort is to reach a consensus among the residents and representatives of institutions and business on a plan or series of plans to stabilize and strengthen the area.

From the Garden's perspective, if these neighborhoods appear unattractive, visitors will not come to the Garden.

Community-based planning is a totally open process. Collaboration and partnerships are the keys to its success.

The first breakthrough came when the large majority of residents and organizations in each neighborhood agreed to work together for the first time. In fact, they have begun to call the area "The Garden District."

With the approval of most of the residents, three consultant groups have been retained to guide the process. The consultants are Christner, Inc., architects and planners; Karl Grice Group Architects, specialists in urban planning and residential design; and the Regional Housing and Community Development Alliance. To date, the William T. Kemper Foundation, Mercantile Bank, Cardinal Glennon Children's Hospital, Midtown Medical Center Development Corporation, and Willert Home Products have joined with the Garden to support the planning. Others, including the City of St. Louis, have pledged assistance.

The planning process will be completed in the autumn, and it is expected to take seven to ten years for the project to gain momentum. Implementation will take additional commitments by the Garden, other institutions and organizations.

George Robnett noted that McRee Town is the most underserved, impoverished and crime-ridden of the four neighborhoods in the Garden District because of a lack of public and private investment over the last 15 to 20 years. Yet it offers the greatest potential for recreating itself and adding value to the entire Garden District because of the available land and the large number of structures that need rehabilitation.

Prior to the construction of I-44, Mr. Robnett said, Tiffany and McRee Town were part of Shaw. To this day, the positive and negative aspects of each neighborhood affect the others. He said that the goal, while difficult to achieve, is quite simple — to produce a plan with alternatives that will attract private and public investments to make a clean, safe, and attractive district.

Father Kenneth Brown, pastor of Saint Margaret of Scotland, described the parish's very diverse and highly successful kindergarten through eighth grade parochial school and the support it has recently received from the William T. Kemper Foundation. Saint Margaret has planned an ambitious capital improvement campaign for the church's centennial year (1999-2000) to improve its 80-year-old campus and to enrich its education programs.

The parish has taken the lead in a program supported by the archdiocese to provide financial incentives to young Catholic families who are willing to buy and live in a home within the parish boundaries. Father Brown said his goal is to "re-seed" the city and keep viable parishes like Saint Margaret of Scotland. He supports the community-based planning process because it promises to serve the interests of "all the souls who work and live in this neighborhood."

Edward Roth, an attorney, has lived in the Shaw Neighborhood for 10 years with his wife and young children. He served as president of the Shaw Neighborhood Improvement Association last year and is currently heading a volunteer group of attorneys to initiate litigation against delinquent landowners.

Mr. Roth said he had found the planning process, even in its early stages, invigorating and remarkable: men and women representing the four neighborhoods, while relative strangers, are now meeting face to face and sharing their common concerns for community-wide planning for a productive collaboration, a collaboration whose success, in his view, is essential to the future vitality of the Garden and the neighborhoods.

Mr. Roth said that, while there will be many missteps, since the process is bound to be imperfect, nonetheless his family, many hundreds of families, and thousands of individuals who live in the neighborhoods which surround the Garden, look forward to meeting the trustees "at the threshold...with our hands extended in friendship, committed to working together with you for our mutual advantage." ■

New I-44 Ramps Are Open

TIM PARKER

The new entrance and exit ramps at Interstate 44 and Vandeventer officially opened on October 2, 1998. A ribbon-cutting ceremony was held at the Garden, with leaders from the Missouri Department of Transportation and the Garden joined by local elected officials and representatives from the contractor, Fred Weber, Inc.

The new ramps are a welcome addition for visitors arriving at the Garden from the west or heading west on the Interstate as they leave. Shown above: eastbound cars exit onto Vandeventer.

Charitable Remainder Trusts

ON September 9 the Garden welcomed 85 members and guests to a free financial planning seminar. Participants heard presentations by three outstanding professionals in the field of tax regulations and financial planning and received personalized advice during the question and answer portions of the program.

James Blase, from the Estate and Trust Department at Armstrong, Teasdale, Schlafly & Davis, said in his presentation, "A charitable remainder trust is an ideal vehicle for making a lifetime charitable gift to the Missouri Botanical Garden without losing the income generated by the donated property. A charitable remainder trust is an arrangement which places assets of your choice in trust. During your lifetime, you receive all or a portion of the income generated by the trust assets, and, if desired, a portion of the principal of the trust, each year. After your death, or after the deaths of both you and your spouse, the trust assets pass to a charity or charities of your choice."

The Garden's gift planning program is a service to its donors, providing financial and tax information that could be useful to anyone who is considering a gift. More financial seminars will be offered in 1999. Announcements will appear in future issues of the Bulletin.

We are grateful to our friends who support the work of the Garden. If you would like further information about estate planning options, please call Patty Arnold at (314) 577-5120.

TIM PARKER

"Estate Planning for the 21st Century" — Shown at the financial planning seminar on September 9 are (from left) Patty Arnold, director of development, with speakers Bruce Barnhart, James Blase, and Joan Malloy.

New Corporate Partners Program

A NEW PROGRAM has been launched to strengthen the relationship between the Garden and corporations in the St. Louis region, with significant benefits for both.

Corporate Partners support the Garden and its mission in important ways. The Garden's botanical research has significant impact on the medical, pharmaceutical, and agricultural fields. The Garden works closely with schools to strengthen science education in St. Louis, and its redevelopment initiatives support revitalization in surrounding neighborhoods.

As annual members of the Garden, Corporate Partners gain wide recognition in the community, with increased visibility among the Garden's 800,000 annual visitors and 34,000 members. Corporate Partners receive a reserved table at the annual Henry Shaw Dinner honoring upper level Garden members, invitations to special events, and a bi-annual newsletter. Additional benefits are available at higher levels of membership.

The Corporate Partners Program is administered by the Corporate Committee of the Board of Trustees. For more information on becoming a Corporate Partner of the Garden, call David Cassens in the Development Office, (314) 577-9513.

Brick Donors' Party

Spectacular weather greeted the 250 members and friends who attended the annual reception for donors of bricks at the Kemper Center for Home Gardening on September 23. A good time was had by all as everyone had fun locating their engraved bricks in the Members' Entry Court Garden.

For information on donating bricks, please call Teri-Ann Wallace in the Development Office, (314) 577-9495.

The Brookings Interpretive Center

LIVE in the Climatron!

MOST mornings at the Garden, the big question is "Who waters today?" Now there is an additional question, "Who feeds the frogs...and the geckos...and the fish...and the shrimp...and the crabs today?"

Are we turning the Climatron into a zoo?

Not quite. The animals are actually part of a new display in the Brookings Interpretive Center. Once we have your attention, we hope to teach you about some of the ways in which animals interact with plants.

The frogs, for example, are poison frogs that obtain their poison from the insects and arthropods that they eat in the wild. The insects and arthropods, in turn, may accumulate the poisons from the plants that they eat. Since scientists do not know exactly which species of insects and arthropods the frogs eat, much less which plants the insects and arthropods may eat, we cannot duplicate the frogs' natural diet. That means our frogs are not really poisonous, though they are every bit as colorful as their wild relatives.

Our captive-bred frogs eat approximately 4,000 crickets and fruit flies per week. The geckos in the Seychelles Island display and the fish, shrimp, and crabs in the mangrove forest display eat a few thousand more. In the wild, the geckos eat nectar and aid in the pollination of palm trees such as coconuts. To fill the vegetarian portion of their diet, we give them baby food, mashed bananas, papaya, and peaches.

So, next time you are in the Brookings Interpretive Center, stop by and see the displays. We hope you will enjoy the animals and learn about plants from a somewhat new perspective. You can see the frogs on the MBG web site at ww.mobot.org/MOBOT/brookings/.

by Gregory M. Basco, manager of the Brookings Interpretive Center

TIM PARKER

From poison frogs to spitting fish, find out how plants and animals interact.

TIM PARKER

The Henry Shaw Fund Annual Appeal

Help the Garden Grow

AS the Garden continues to flourish and expand with exciting new additions and improvements every year, so does its need for annual operating support. The Henry Shaw Fund, named for the Garden's founder, provides for these crucial expenses. This support makes it possible for horticulture, education and research to continue to offer their full range of programs and services.

At the end of each year, the Garden asks its members to make a special gift to the Henry Shaw Fund, above and beyond their membership dues. Last year, members responded to the annual appeal with enthusiasm and generosity, contributing over $90,000 in unrestricted operating support.

This year, we are asking you to "help us grow" with a special mailing in November. When you open the envelope, you will find a packet of "Old Fashioned" mixed seeds enclosed, celebrating the vision of Henry Shaw and the Garden he planted in 1859.

Henry Shaw's seeds grew and flourished to create a Garden we are still enjoying today. As the end of the year approaches, we once again turn to you, our members and greatest supporters, asking you to support the 1998 Henry Shaw Fund and help the Garden grow.

Home Gardening

BULBS FOR THREE SEASONS

AFTER a long winter, we all look forward to new and familiar crocuses, irises, grape hyacinths, daffodils, and tulips. Interplanting with spring annuals, such as alyssum, forget-me-nots, pansies, and violas helps to soften the transition between early, middle, and late seasons and complements the colors and textures of the stands of blooming bulbs. Alliums, lilies, and colchicums extend the color through summer and fall.

Before any of the spring blooms can begin, a lot of preparation and planning are needed in the fall. Whether you have a small yard or a large one, you can achieve color and blooms that last from March through October. The secret is to combine bulbs that bloom in sequence.

In the Samuels and Heckman Bulb Gardens we layer and interplant our bulbs for a longer display. In one area we may plant winter aconite, *Eranthis hyemalis*, one of the earliest to bloom at the end of February and early March, followed by snowdrops, *Galanthus nivalis*, crocuses, tulips, and daffodils, or *Narcissus* species. These are followed by onions, *Allium* species; lilies, *Lilium* species; "surprise" or "magic" lilies, *Lycoris* species; and autumn crocus, *Colchicum* species. These are just a few of the bulbs you can plant in combination to provide color from early March to October. Experiment and use what works best for you.

Design

To achieve three-season color in the same bed, get a feel for the heights of plants and their planting depths. Sketch out your bed on a piece of paper. Mark any large trees or shrubs. Outline the areas where you want to plant your bulbs, from tallest to shortest. Place the tallest, such as Lilium, toward the back. The general rule of thumb is to plant bulbs three times as deep as the bulbs are tall — if a bulb is two inches in length, plant it six inches deep. Smaller bulbs can be planted in the same area, but only three or four inches deep.

Selection

When choosing bulbs, make sure that they are firm and disease free. Bulbs that are soft or dried out are not worth planting. Be certain to buy only "nursery propagated" bulbs, avoiding those that are "wild collected." Ask questions if you are not sure — many "minor" bulbs are becoming endangered or threatened with extinction by this practice.

Planting

For your bulb garden, choose either open areas with lots of sun, or plant between perennials, among ground covers, and under deciduous trees or shrubs. Bulbs do best where they have plenty of sunshine, but don't be intimidated by areas that appear shady in the summer and fall. If there are deciduous trees in the area, there will be ample light for the bulbs before the trees leaf out.

Bulbs require good drainage and most need a pH range between 5.5 and 7.0. If you have a clay soil, it can be loosened by adding compost. In sandy soil, the addition of compost will help to hold moisture and add nutrients. Work the compost in to a depth of about 12 inches.

Avoid tilling under trees, as this damages tree roots. Leave these areas for smaller bulbs that do not need to be planted deeply. Plant bulbs with a trowel or bulb planter to the proper depth, and tamp the soil down around the bulb to eliminate air pockets. Apply two to three inches of mulch and water the area thoroughly.

Perennial Bulbs

Alliums, colchicums, crocuses, lilies, muscaris, narcissus, and scillas all tend to perennialize nicely in the St. Louis area. Some species of tulips, such as *Tulipa fosteriana, T. greggii, T. kaufmanniana, T. praestans,* and Darwin tulips will also perennialize, but will not be long-lived. In general, expect them to last two to three years.

To enhance the bulbs and hide their foliage when it begins to die down, interplant with annuals. Dianthus and pansies can be planted in the

JACK JENNINGS

FALL is the time to plant bulbs and dream of glorious color to come next spring. But there can be more to bulb displays than early spring blossoms. Adventurous gardeners have begun to experiment with less familiar varieties of bulbs that provide color throughout the summer and fall.

The Heckman and Samuels Bulb Gardens at the Garden are a showcase for blooms almost nine months of the year. You can see new and unusual flowering bulbs, as well as the tried and true, and preview what's to come on the market in the near future. Thousands of new bulbs have been added to the 19,000-square-foot display, where more than 60 different kinds of bulbs are interplanted with complementary shrubs and trees.

KING SCHOENFELD

The Samuels and Heckman Bulb Gardens are a showcase for blooms three seasons of the year.

Blooming starts at the end of February, with peak time for the spring bulbs in mid to late April. Elsewhere in the Garden, the large tulip displays at the Swift Vista and the Milles Sculpture Garden will be spectacular, with early, mid and late season tulips and pansies planted between the bulbs. In the Heckman Rock Garden, be sure to notice the various miniature bulbs. The English Woodland Garden features areas of natualized bulbs, and the Kemper Center gardens provide more ideas.

Many of the newest additions in the Garden's displays are summer and early fall blooming bulbs, mainly South African and neo-tropical bulbs that are not hardy to the St. Louis climate. These bulbs must be brought in at the end of each year and grown inside or stored in coolers or in the basement.

Jason Delaney, the horticulturist who maintains the bulb gardens, said, "We have increased our diversity of summer bulbs to show that there are more than just gladiolus and cannas to represent the summer spectrum of bulbous plants. Homeowners CAN have flowers from bulbs throughout most of the year with a little creative planning and proper maintenance."

fall to add color both before and after bulbs bloom.

Bulb foliage should be allowed to dry naturally. Avoid tying or braiding daffodil leaves, as this inhibits photosynthesis, which the bulbs need to build the energy to bloom the following year.

For More Information

For more information, the Garden Gate Shop has several excellent books plus a video, "Spring Flowering Bulbs," featuring Missouri Botanical Garden Horticulture staff.

— *Shirley Dommer, supervisor of the intensive gardens, Horticulture Division*

New State Champion Cucumbertree

The magnificent cucumbertree, *Magnolia accuminata*, located on the northeast corner of the National Council of State Garden Clubs, has been declared the new state champion by the Missouri Department of Conservation. The grounds of the National Council headquarters are open to Garden visitors, who may enter on foot from the south side of the Lehmann Building or from the English Woodland Garden. There are currently 136 state champion trees in Missouri. The title is bestowed on a tree based on its measurements, and the Department of Conservation invites everyone to nominate their favorite giants. For more information on state champion trees, write the Champion Tree Coordinator, Missouri Department of Conservation, P.O. Box 180, Jefferson City, Missouri 65102.

Calendar

November 14 & 21 — 2 Saturdays

Children's Royal Tea Party

2 p.m., Tower Grove House. Each child will receive a crown and scepter and all are encouraged to come dressed in royal costume for a very special tea party to benefit Tower Grove House. Attendance prizes will include Princess Di Beanie Babies. A photographer will be on hand taking Polaroid pictures presented in cardboard frames at $5 each. Feast on tea sandwiches, cookies, fruit, cocoa, tea, and milk, presented by Tower Grove House Auxiliary. Tickets for each Saturday tea are $7.50 per adult (ages 13 and up) and $6 per child ages 3 to 12, plus regular Garden admission. Advance reservations are required: please call (314) 577-5150.

All ready for a royally good time are (left to right): Mariah Mathews, Kimberly Brown, and Sarah Theiss, with Norma Hill

November 1 – 18

"Then and Now"

9 a.m. to 5 p.m. daily, Monsanto Hall. Photographic exhibit by Dr. Sherman LeMaster continues. Free with Garden admission.

November 9 Monday

Slide Lecture by Wade Davis

7 p.m., Shoenberg Auditorium, followed by booksigning. Noted ethnobotanist Dr. Wade Davis presents his new book, *Shadows in the Sun: Travels to Landscapes of Spirit and Desire*, which will be available for purchase.

November 15 Sunday

"Made in the Shade"

2 to 5 p.m., Ridgway Center. Victorian floral lampshades are popular once again. St. Louis author and artisan Joy Christensen displays her creations and demonstrates fun and inexpensive ways to create fanciful lighting effects using fabrics, fringes, and flowers. Free with Garden admission.

November 21 Saturday

"Baroque Sunset" Concert

4 p.m., Spink Pavilion. Watch the sunset over the Climatron while enjoying a very special musical performance by acclaimed Baroque violinist Marilyn McDonald. She is joined by St. Louis musicians Maryse Carlin, harpsichord, Rose Martin, violin, and Beth Macdonald, viola da gamba. Tickets are free with Garden admission, but must be reserved by calling (314) 577-5141. Seating is limited.

November 25 – January 3

Holiday Flower Show: "Picture You, Picture Me!"

9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. Create keepsakes to treasure forever and have fun photographing your family and friends in enchanting holiday scenes: "T'was the Night Before Christmas," "Jolly Snowmen," "Winter Wonderland," "Toyland," "Winter Garden," and "Puppies' Sleighride!" Or get a snapshot of your kids peeking through face cut-outs in "Victorian Carolers," "Holiday Plant Factory," "Pillow Fight," and "Candyland." Filled with thousands of blooming poinsettias, cyclamens, begonias, gloxinias, Christmas cherries and peppers, with all the color and sparkle of the season. Flower show admission is $2 for adults, $1 for seniors age 65 and up, free to members and children age 12 and under. For the Members' Preview Party, see November 24.

December 5 Saturday

Breakfast With Santa

8 to 10:30 a.m., Ridgway Center. Share the spirit of the season by bringing a new pair of mittens or a child's hat to donate to a good cause, then visit with Santa and get a real pine seedling to take home. Enjoy an old-fashioned breakfast with pancakes,scrambled eggs, sausage links, potato patties, biscuits with butter and jelly, juice, and a decorated cupcake for the kids. Breakfast is $10 per person, advance reservations required. Please call (314) 577-9500, or send your check to the Membership Office. Seating in the Gardenview Restaurant is on a first-come, first-served basis. While you're at the Garden, don't miss the annual Holiday Sale in the Garden Gate Shop, offering a special 20% discount for members.

Members' Days

n Members' Days, Garden embers receive free tram des, additional discounts the Garden Gate Shop, and 0% off in the Gardenview estaurant.

November 12 Thursday

Holiday Decorating

a.m., Shoenberg uditorium. Jane Winter and asy Love of "Wildflowers" Webster Groves share eir ideas for making onderful holiday corations with creative ir. Seating is on a first- me, first-served basis. ee, for members only.

December 12 Saturday

All-Shaw ommunity Choir

.m., Shoenberg Auditorium. vorite holiday music rformed by people of all ages o live in the Shaw ghborhood. Seating is on a st-come, first-served basis. ee, for members only.

November 24 Tuesday

Members' Preview: Holiday Flower Show

5 to 8 p.m., Ridgway Center. Enjoy the first look at "Picture You, Picture Me!" plus a special 20 percent discount in the Garden Gate Shop. Entertainment, cash bar. Dinner buffet will be available in the Gardenview Restaurant at $10.95 per person, no reservations.

December 13 Sunday

Chanukah: Festival of Lights

11 a.m. to 5 p.m., Ridgway Center. A traditional Jewish holiday celebration with craft workshops, sing-a-longs, puppet shows, storytelling, cooking demonstrations, musical performances, and a menorah lighting ceremony. The Garden Gate Shop will feature Chanukah merchandise. Call (314) 577-5141 for more information. Free with Garden admission.

December 26 Saturday

Kwanzaa: Festival of the First Fruits

11 a.m. to 5 p.m., Ridgway Center. Celebrate the richness of African American culture with Kwanzaa stories, crafts and games for children, foods from the tropics, and demonstrations of authentic African cuisine. The Garden Gate Shop will offer Kwanzaa merchandise. Call (314) 577-5141 for more information. Free with Garden admission.

November 25 – January 3

Holiday Wreaths

9 a.m. to 5 p.m., Monsanto Hall. 9 a.m. to 5 p.m. daily, Monsanto Hall. See page 14.

November 27 – 29
Friday – Sunday

"After Thanksgiving" Sale

9 a.m. to 5 p.m., Garden Gate Shop. Start your holiday shopping off with 10 to 30 percent discounts on most merchandise. No other discounts apply.

December 3 & 4
Thursday & Friday

Carols in the Garden and Candlelight Tours

5 to 9 p.m., Ridgway Center and grounds. See back cover for details.

December 3 – 6
Thursday – Sunday

Garden Gate Shop Holiday Sale

9 a.m. to 9 p.m. on Thursday and Friday; 9 a.m. to 5 p.m. on Saturday and Sunday. Delightful holiday shopping features exclusive and unique gifts from around the world in the beautiful new Garden Gate Shop. Members receive a special 20% discount on all merchandise, all four days.

December 8, 9, 14, & 16

Holiday Luncheons in the Victorian Tradition

Tower Grove House is closed for decorating on November 30 and opens for the holidays in all its colorful Victorian splendor beginning December 1. Seating for the luncheons begins at noon on four specified days, in the Tower Grove House Tea Room. Reservations are required: call 577-5150 starting Monday, November 16.

December 17 – 19
Thursday – Saturday

Extra Hours for Holiday Shopping

9 a.m. to 8 p.m. The Garden Gate Shop is open extra hours for last minute holiday shoppers.

December 26 – 28
Saturday – Monday

End of Year Sale

9 a.m. to 5 p.m., Garden Gate Shop. A great opportunity to find extra bargains!

Members

When they weren't shopping, Market visitors enjoyed a real Missouri good time. Top to bottom: Fun for all ages included decorating pumpkins, dressing up as scarecrows, milking a very patient cow, pressing fresh apple cider, and meeting a friendly alpaca.

"Best of Missouri" Market

Our Thanks to One and All!

THE SEVENTH ANNUAL "Best of Missouri" Market was a great success thanks to the hard work of wonderful volunteers, including the entire Members' Board and the chairs for the event, Nora Stern and Ellen Dubinsky. Our thanks go to each and every person who attended the Market, to the advertisers who made the program book possible, and to the generosity of our sponsors:

GrandPa's
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Premier Communities Corp.
KMOX
Pershing Charitable Trust
Clifford Willard Gaylord Foundation
NationsBank
St. Louis County Farm Bureau
AgriMissouri

Holiday Wreaths

November 25 — January 3

9 a.m. to 5 p.m. daily, in Monsanto Hall. Enjoy a magnificent display by outstanding St. Louis floral designers. Several wreaths will be available for bid by silent auction. Featuring designs by:

Alex Walbart Florist • Botanicals on the Park • The Bug Store
Flower Depot, Ltd. • Kenary Park Florist & Gifts • Ladue Florist
Lee Russo Designs • My Secret Garden • Petals by Irene
Schnuck's Markets Floral Designs • Silkworm's Garden LLC • Studio P
Surprise Florist • Tom Carr Florist • Two Raven Designs • Wichman's Florist

Thank You, Bar Italia

Special appreciation goes to Bar Italia for donating a gift certificate as a door prize for the October Members' Day, "Following Henry Shaw through Italy."

Past Presidents of the Members' Board

Nora Stern

TIM PARKER

FOR the past 35 years, Nora Stern has been so active at the Garden that it would be difficult to imagine the place without her. From her three terms as president of the Members' Board to her current tenure on the Board of Trustees, Nora has given unstintingly of her energy, ideas, and enthusiasm.

Mrs. Stern began volunteering at the Garden in 1963, serving as a hostess at flower show premieres and preview parties. In her first term as president of the Members' Board, 1969-72, there were only 2,000 members; during her subsequent two terms, 1977-79 and 1983-85, membership increased to over 16,000. In 1985, she was elected to the Board of Trustees, where she has served with distinction on the Capital Fund and Long Range Planning committees.

Among Nora's greatest contributions to the Garden are her extraordinary creativity and vision in developing special events and fund raising. Beginning with the 1976 Chrysanthemum Ball with Gloria Vanderbilt, Nora has chaired benefits, galas, and other major events, including the Garden's 125th Anniversary Party in 1984, two benefit galas starring Bobby Short, the Centennial Benefit of 1989, the 1991 gala with Lord & Taylor, and the annual Henry Shaw Dinner.

During Nora's first term as president of the Members' Board, she initiated the Garden's first special events for members and helped establish the Membership Services Information Desk and the Garden Guide program. It was Nora's idea to offer picnics at the Garden on special occasions, an idea that led to the successful and popular Rose Evening buffet supper each year.

Nora conceived and developed the spectacular Fragrance Festivals of 1988 and 1989, which evolved into the Garden's annual Mother's Day luncheons. In 1992, Nora, assisted by Ellen Dubinsky, created the enormously popular "Best of Missouri" Market, and she and Ellen have co-chaired the event for the past seven years. Last spring, Nora and her husband Walter were co-chairs for the gala "Impressions of Giverny."

Of her exceptional commitment to the Garden, Nora simply says that she grew up with a family tradition of service and giving back to the community. "The Garden has encouraged and supported all of my most creative ideas one hundred percent," she said. "Working with this institution is a wonderful experience. The Members' Board and the Garden staff are simply amazing in their incredible commitment, talent, and dedication. We all work together, and that ensures our success."

Last Chance at Current Rates!

Save 20% on Gift Memberships

DURING the December Holiday Sale in the Garden Gate Shop, take advantage of this special opportunity before dues increase in 1999!

Thursday & Friday,
December 3 & 4 —
9 a.m. to 9 p.m.

Saturday & Sunday,
December 5 & 6 —
9 a.m. to 5 p.m.

During the Holiday Sale, visitors may purchase a regular $50 Garden membership for just $40; or purchase a $40 senior membership for only $32. Each person who receives a gift membership will be sent one of our snazzy new MBG notepads and a holiday greeting from you!

Enjoy your special 20 percent members' discount right away at the Garden Gate Shop sale, or give a gift that will delight your family and friends all year long.

Membership Dues Will Increase January 1, 1999

BEGINNING January 1, annual dues for a regular Garden membership will be $55. A senior membership for those age 65 and older will be $50.

As a new benefit, also beginning in 1999, seniors at the Contributing Plus level and above will receive $5 off the dues for any membership category. This will enable seniors to enjoy all of the benefits of regular or upper level membership at a discount.

Anyone who would like to renew an existing membership prior to the end of the year may do so, and will be credited with a full 12 months of membership at the current rates.

Dues increases are necessary for the maintenance of the Garden's historic buildings, facilities and grounds, and to support the increased demand for services and programs.

Benefits of your Garden membership include:

Free admission for two adults and children under age 18;

Invitations to special events such as flower show previews, monthly members' days, and other special events just for members;

A ten percent discount in the Garden Gate Shop;

A free subscription to the bi-monthly *Bulletin*;

Free reciprocal admission at other botanical gardens and arboreta nationwide;

Discounts on education classes and facility rentals at the Garden; and more.

Additional benefits are offered at higher levels of membership.

If you have questions about your membership, please call (314) 577-5118.

45th Annual Systematics Symposium

TIM PARKER

Speakers at the symposium included (from left): Barbara Briggs, John MacKinnon, Ebbe Nielsen, John Lundberg (rear), Lynn Margulis, Peter Raven, Michael Madigan, Barbara Ertter, Michael Donoghue, Ghillean Prance, and Richard Brusca.

"Our Unknown Planet"

ASTONISHING DISCOVERIES of new species and predictions of what lies ahead attracted more than 450 scientists to the annual Systematics Symposium at the Garden on October 9 and 10, 1998. Participants came from the United States and around the world.

Reports of plants and animals previously unknown to science "make us stand back in awe of the living things that make this world work," Peter Raven said, adding that one of the most exciting things about biology "is what we don't know."

New discoveries challenge our understanding of the diversity of life on earth. Sir Ghillean Prance, director of the Royal Botanic Gardens, Kew, addressed the symposium with estimates that there may be 300,000 kinds of flowering plants in the world, instead of the 250,000 commonly assumed to exist, an increase of 20 percent. Barbara Ertter of the University of California at Berkeley shared estimates that about 1,800 plant species await discovery in North America alone.

Scientists are beginning a new age of discovery of biological diversity.

Other speakers described recent finds, including the Wollemi pine, an archaic conifer found two years ago in a deep gorge in the Blue Mountains above Sydney, Australia, and spectacular finds of new organisms that live at extreme temperatures or at vast depths in the oceans. In the past decade, new species of monkeys and other primates have been discovered in the Amazon, large mammals have been found in south Asia, and freshwater fishes of astonishing diversity are being discovered in South American rivers. Among the insects, where estimates range from two to 30 million species, research is illuminating knowledge of evolutionary relationships and diversity.

Since the annual symposium began at the Garden in 1954, the National Science Foundation has provided support for 43 of its 45 years, including 1998.

Bowker Studies Information Systems at CBI

DR. Geoffrey Bowker, associate professor at the Graduate School of Library and Information Sciences at the University of Illinois at Urbana-Champaign, is studying and conducting research at the Garden's Center for Botanical Informatics, CBI, this fall and winter.

Dr. Bowker, a sociologist and historian of science, recently received a National Science Foundation Professional Development Fellowship to support his work. Bowker's research highlights the importance of analyzing the social and cultural context of an information system during the design process.

"Geof's work will be important to the CBI's ongoing informatics projects, including our work with the Flora of North America and the Flora of China checklist," said Dr. John Schnase, director of CBI. "He brings an insight that is unmatched, and we could not be more pleased to support him in this endeavor."

Center for Plant Conservation Receives Prestigious Conservation Award

THE Center for Plant Conservation, CPC, is one of nine winners of this year's Chevron Conservation Award. For more than four decades, the Chevron Conservation Awards have paid tribute to the environmental accomplishments of organizations, professionals, and volunteers. This year the awards ceremony was held at the National Museum of Natural History at the Smithsonian Institution in Washington, D.C.

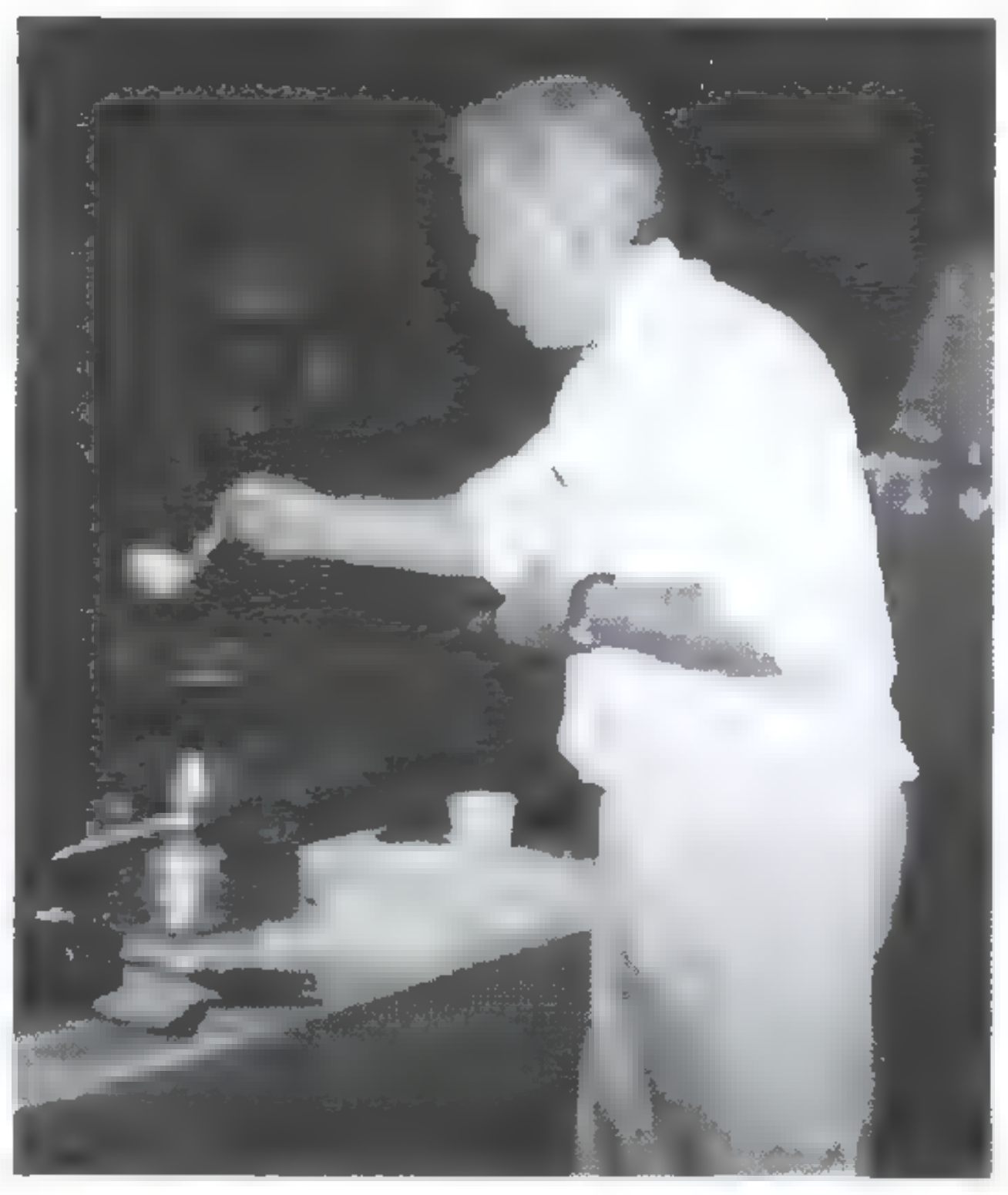
The CPC was honored for its efforts to save the 2,000 native plants at risk of extinction in the United States. The Center is the only national organization dedicated exclusively to preventing the extinction of America's threatened plants. Since its founding in 1984, it has developed a simple and effective framework for organizing the conservation efforts of 28 leading botanical gardens and arboreta, saving many of America's rarest plants from extinction. CPC has its headquarters at the Missouri Botanical Garden.

"The Center for Plant Consrevation exemplifies the impact that a dedicated organization can have on improving the environment," said Don Paul, vice-president of technology and environmental affairs for Chevron Corporation.

Enjoying the party (from left): Bob Nellums, Blanton Whitmire, Betty Nellums, Peg Whitmire, and Betty Long.

Guests Barbara Harding and Audrey Coyle express their appreciation of Dave Owens, executive chef of Cardwell's at the Plaza, and his Asian coconut milk soup.

Chefs from Harvest, Chris Cochran, James Gill, and executive chef and owner Steve Gontram, with their pan seared salmon over pole beans and grilled Swiss chard dressed with tomato vinaigrette.



David Timney, executive chef and owner of Balaban's, preparing smoked trout with corn pancakes and horseradish sauce.

Highlights from "Chefs in a Garden"

THE FIRST ANNUAL "Chefs in a Garden" was a great success, with more than 200 guests feasting on specialties from some of St. Louis's finest restaurants to benefit Gateway Greening, Inc.

A stellar group of chefs used fresh vegetables and herbs from community gardens to prepare their recipes. Guests met the chefs while enjoying such treats as pan seared quail from Annie Gunn's, risotto with goat cheese tomatoes and pepper pesto by Big Sky Café, magical garlic potatoes from Riddle's Penultimate Café and Wine Bar, fine wines from Maddinger's, and Schlafly's local brews.

The event was chaired by Marvis Meyers, board member of Gateway Greening, and Gwenne Hayes-Stewart, Gateway's executive director. They extend their thanks and appreciation to all the restaurants and chefs, and to Edward Jones for its lead sponsorship. If you would like to receive an invitation next year, call Gateway Greening at 577-9484.

22nd Annual Japanese Festival

Our warmest appreciation goes to all the sponsors who helped make the Japanese Festival on Labor Day weekend a wonderful success for the 22nd year:

Anheuser-Busch Companies
Biokyowa, Inc.
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Toyota Tsusho America, Inc.
Trans World Airlines, Inc.
U.S. Paint Corporation

SHO CHIKU BAI
松竹梅

MARK ALLEN

Left: The traditional breaking the sake barrel is a highlight of the opening ceremony at the Japanese Festival. Shown (from left): Peter Raven, director of the Garden; Tatsuo Tanaka, consul general of Japan; Clarence Harmon, mayor of St. Louis; and Patrick Dougherty, state representative.

THE GARDEN, in collaboration with local universities, offers one of the world's finest programs training graduate students in botanical systematics.

Systematics is the identification and classification of species and the foundation of all natural science and conservation. Botanical research provides the crucial, baseline scientific information needed for future research and conservation decisions.

Over the years, several individuals and families have funded fellowships that make it possible for students to pursue their studies and conduct research at the Garden.

Research Fellowships

The education of scientists is a key strategy in the Garden's efforts to document and preserve plants for the benefit of future generations.

The Elizabeth A. Baltzer Fellowship was established in 1987 to assist women pursuing graduate studies in taxonomy and ecology. The current Baltzer fellow is Alison Graff, a student at Washington University. She is studying floral herbivory and reproductive fitness in *Sidalcea malviflora*. Last year Alison received a National Science Dissertation Research Grant, a prestigious honor awarded to only several dozen students in the country each year.

The Oliver K. and Suzanne Bovard Scholarships support student research in botany and related sciences. Antony Jardim, the current Bovard Fellow, is in his second year at the University of Missouri-St. Louis, studying a poorly known group of plants in the woody Linaceae, the economically important family that provides flax fiber and seed, linen, and linseed oil. A native of Georgetown, Guyana, on the Caribbean coast of South America, Tony did his undergraduate work at the University of Guelph in Ontario, Canada, and spent five years working with Dr. Timothy Killeen, the Garden's resident botanist in Bolivia.

The Ruth Cornelius Layton and Emmet J. Layton Fund was established in 1983 to help students of botany at Washington University conduct field research. Both Mr. and Mrs. Layton did undergraduate and graduate work at Washington University. Simon Malcomber, with support from the Layton Fund, is studying *Gaertnera*, a genus in the Rubiaceae, or coffee family. Before coming to St. Louis, he trained field botanists in Madagascar for three years as part of the Garden's program of conservation and research there. Earlier in his career he worked at the Royal Botanic Gardens, Kew, and did his undergraduate work at Reading University in England.

TIM PARKER

Shown in the herbarium at the Monsanto Center are (from left): Simon Malcomber, Antony Jardim, and Thomas Prinzie. Not pictured: Alison Graff.

The Ann Smeltzer Fellowship was made possible by contributions from Ms. Smeltzer, who has a long-standing interest in environmental and conservation issues. Thomas Prinzie, a student at Washington University, is the current holder of the Smeltzer Fellowship. His research on the tribe Gonolobeae in the Asclepiadaceae, or milkweed family, has taken him throughout southern Mexico. A native of Leuven, Belgium, Thomas came to the United States with his family in 1980. He has an undergraduate degree in music composition from Temple University in Philadelphia and was a professional jazz musician and organic farmer before embarking on his scientific career.

The Garden also administers the **Anne S. Chatham Fellowship**, which is awarded annually by the Garden Club of America to a Ph.D. student in medicinal botany. The current fellow, Michael Thomas, is studying the medicinal uses of plants among an indigenous group in Brazil. He is a student at the University of Southern Florida.

Rockefeller Grant to Student from Madagascar

SYLVAIN Razafimandimbison, a Ph.D. candidate at the University of Missouri-St. Louis, has returned from nearly a year of field work that took him to Madagascar, Tanzania, Gabon, South Africa, and the Comoros Islands. His field research was made possible by a Rockefeller Foundation African Dissertation Internship.

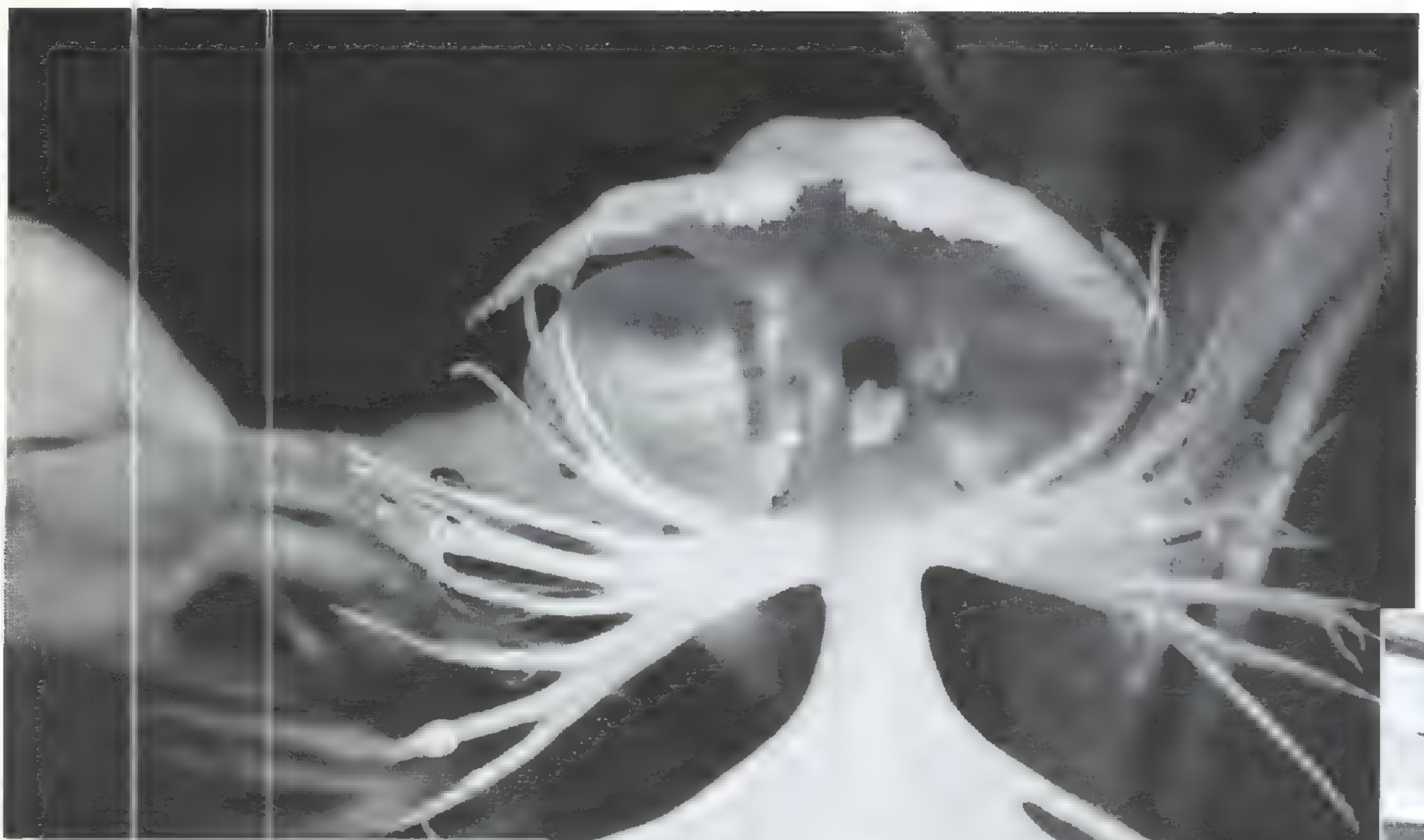
Sylvain, who is from Madagascar, is one of two botanists sponsored by the Garden's Madagascar Research and Conservation Program to come to the U.S. for graduate studies. The other student, Armand Randrianasolo, recently earned his Ph.D. from University of Missouri-St. Louis.

For More Information

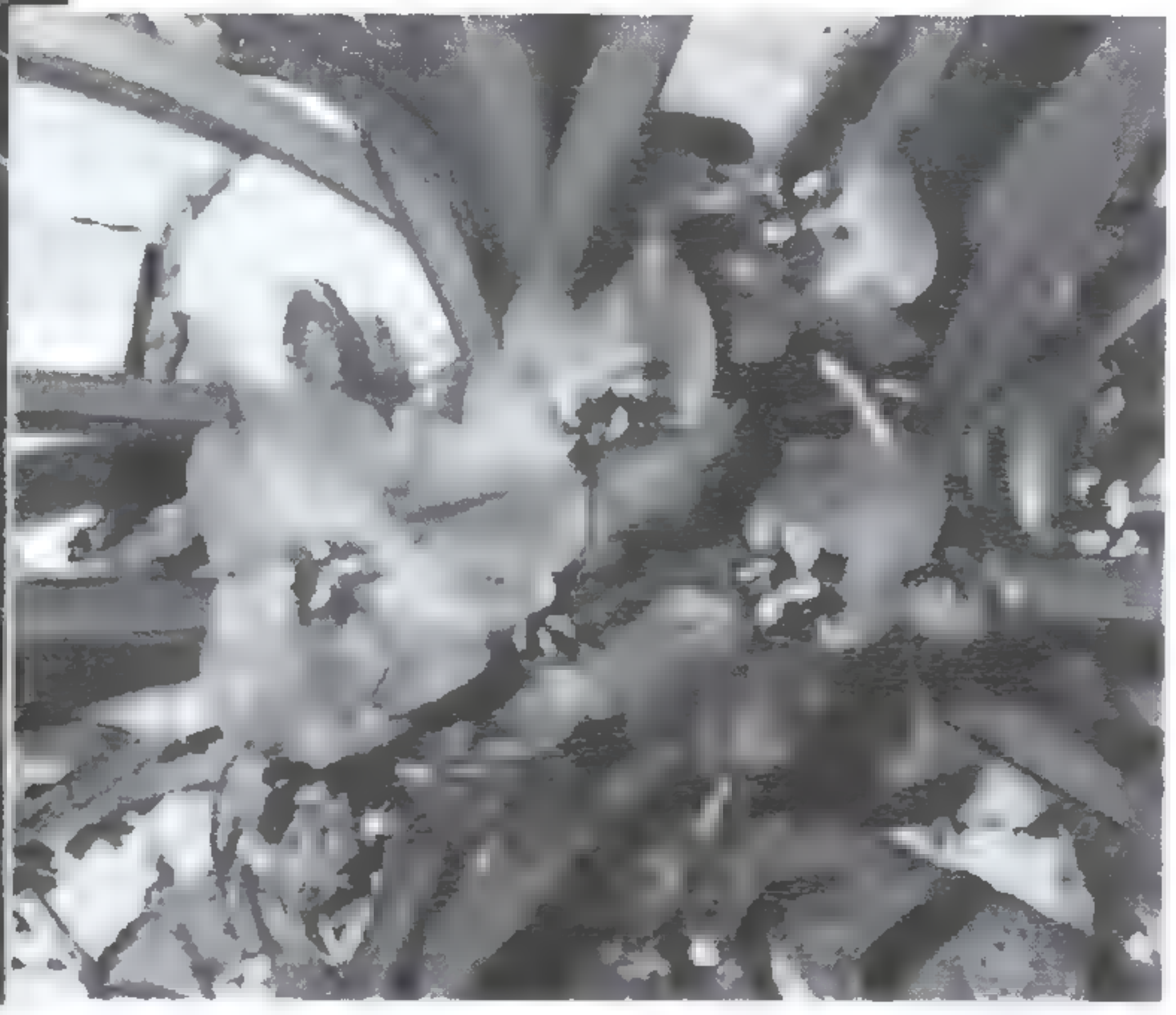
For more information on the Garden's Graduate Studies Program, write to Dr. P. Mick Richardson (e-mail: richards@mobot.org). For information about our students, visit their page on the Garden Web site at www.mobot.org/mobot/research/gradstudents.

—Kathryn Hurlbert, MBG Research Division

PHOTOGRAPHS BY GEORGE YATSKIEVYCH



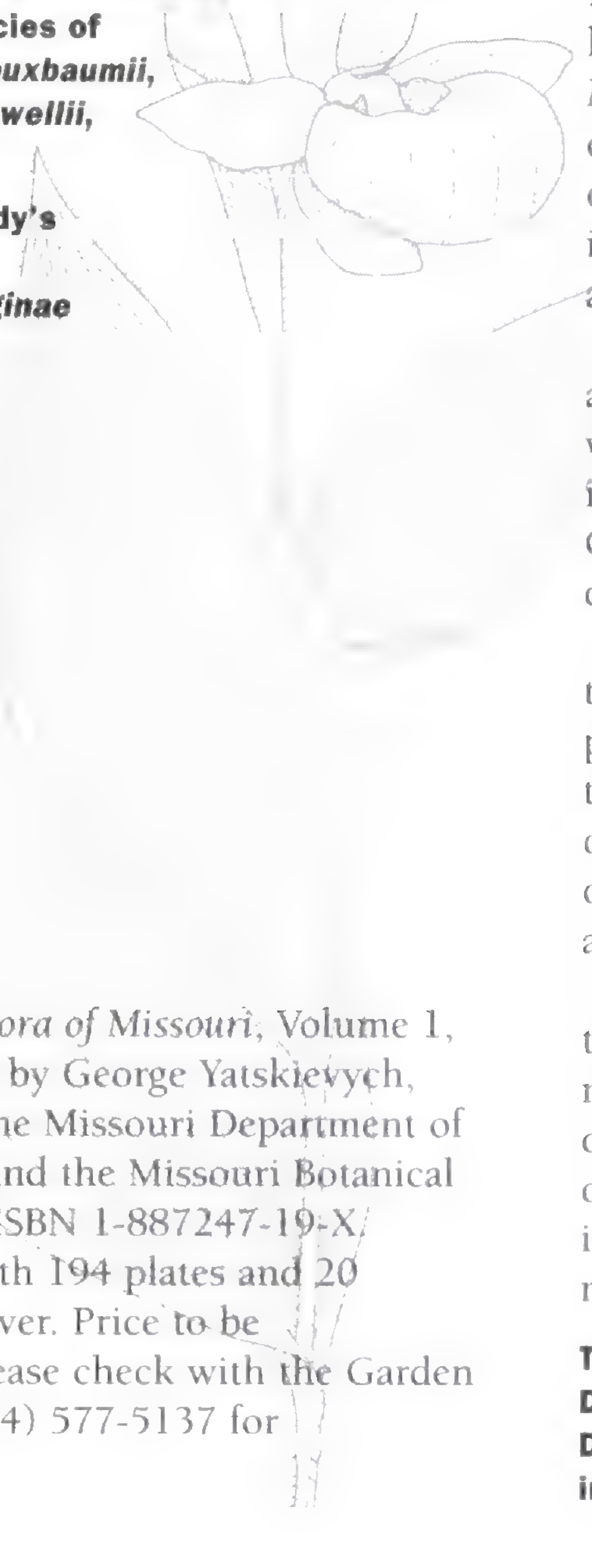
Left: Western prairie fringed orchid, *Platanthera praeclara*



Below: Wild crocus, *Tradescantia longipes*

Right: White trillium, *Trillium flexipes*

Above: Two species of sedges: *Carex buxbaumii*, left, and *C. sartwellii*, right.



Right: Showy lady's slipper orchid, *Cypripedium reginae*

ILLUSTRATION BY PHYLLIS BICK

A Landmark Publication

The New Flora of Missouri

NEARLY 300 PEOPLE have signed up at the Garden Gate Shop for the long-awaited first volume of the revised edition of *Steyermark's Flora of Missouri*, expected by the end of 1998. The culmination of more than a decade of research, the first volume of this new identification guide and encyclopedia of Missouri's diverse and interesting plant life will be an important addition to the bookshelf of anyone with a love for the outdoors and nature.

In 1987, the Garden and the Missouri Department of Conservation began a joint project to revise the state's floristic manual. The original work was written by the late Dr. Julian Steyermark, a Garden curator, and published in 1963. Based at the Garden, the new *Flora of Missouri* is directed by Dr. George Yatskievych, a botanist for the Department of Conservation. A dozen artists prepared 586 new plates of plant illustrations for the project.

Volume One includes an expanded set of introductory chapters that discuss the history of Missouri botany, its climate, physical features, vegetation, and plant communities. A summary chapter analyzes the botanical diversity of the state, changes in our understanding of the flora over time, and the contrast between declining species of conservation concern and the increasingly common array of weedy exotic invaders.

This first of two volumes contains fully revised treatments of the ferns, fern allies, conifers, and monocots growing wild in Missouri. It includes two of the largest families in the state's flora, the Poaceae, or grasses, and Cyperaceae, or sedges, and such important groups as the irises, lilies, orchids, and numerous aquatic plants.

Steyermark's Flora of Missouri, Volume 1, revised edition by George Yatskievych, published by the Missouri Department of Conservation and the Missouri Botanical Garden Press. ISBN 1-887247-19-X, 1,000 pages with 194 plates and 20 figures, hardcover. Price to be announced. Please check with the Garden Gate Shop, (314) 577-5137 for availability.

PHOTOGRAPH BY KAY YATSKIEVYCH

The new *Steyermark's Flora of Missouri* is directed by Dr. George Yatskievych, a botanist for the Missouri Department of Conservation. He is shown at right, investigating aquatic plants.

Trustee Profile

Marlene E. Davis

MARLENE E. DAVIS was elected president of the St. Louis Board of Education on June 16, 1998. Under the terms of the Will of the Garden's founder, Henry Shaw, Ms. Davis serves as a member of the Garden's Board of Trustees by virtue of her office.

Ms. Davis has served on the city's school board since April 8, 1997. A St. Louis resident for most of her life, she was educated in St. Louis public schools, as were her children. She has worked in the areas of real estate, social services, health and community development.

Ms. Davis has many memories of attending the Garden while she was growing up. She and her family have continued to visit the Garden often through the years, and she is very familiar with the Garden's educational programs.

"The Garden is a wonderful resource for St. Louis," Ms. Davis said. "Beyond being a beautiful place to visit, the Garden makes great contributions by teaching people about horticulture and assisting neighborhoods to develop their community gardens and greening programs." She praised the enhanced opportunities offered through the Garden's Education Division for students and teachers to learn about science and horticulture, and looks forward to building on the successful collaboration between the Garden and St. Louis Public Schools.

In addition to her work with the school board, Ms. Davis is an active member of the St. Louis Enterprise Zone Advisory Board. She works closely with several neighborhood organizations and programs that support children and families.

Peter Raven said, "Ms. Davis is a wonderful addition to our Board of Trustees. Her commitment to the St. Louis community and its educational programs are a great asset, and we look forward to working with her."

TIM PARKER

Reception for Photography Exhibit — Dr. and Mrs. Sherman LeMaster with Peter Raven (left) at the opening reception for "Then and Now," an exhibit of Dr. LeMaster's color photographs on display in Monsanto Hall through November 18.

Frank Steinberg driving a tractor at Shaw Arboretum.

In Memoriam

Frank Lawrence Steinberg

LONGTIME staff and friends of the Garden and Shaw Arboretum were saddened by the death of Frank L. Steinberg in May. Steinberg was nineteen years old when he began working at the Arboretum in 1927, just two years after the property was purchased by the Garden Board of Trustees. He worked at the Arboretum until his retirement as superintendent 52 years later, in 1978.

When Steinberg became superintendent of the Arboretum in 1957, he and his family took up residence in what is now the Joseph H. Bascom Manor House. After four years, they decided the Manor House was too big and moved to the gate house located directly behind the Arboretum Visitor Center, where they lived until Steinberg retired. He continued to work at the Arboretum part-time and enjoyed restoring and displaying his extensive collection of antique tools.

The current director of Shaw Arboretum, John Behrer, worked for Steinberg. "Frank paid great attention to detail and had perfected efficient ways of doing specific tasks which made it easy to learn from him. He made sure the fine points of maintenance were not lost on the younger generation. You cleaned up tools and put them back in place. We still have some of the tools and equipment that Frank maintained."

Steinberg also taught the staff how to get a lot done with limited resources. "Frank practiced sustainability before it became popular," Behrer said. "His dedication and enthusiasm for the Arboretum and the work that needed to be done was catching. He was there in the trenches with you."

Frank's son Vernon said, "Dad believed there was a place for everything and everything should be in its place. He was a perfectionist; honest and truthful. He was very loyal and did the best job he could."

— Barbara Troutman, Shaw Arboretum staff

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Volume One nears publication.

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Carols in the Garden

December 3 & 4, 1998 • 5 to 9 p.m.

CLIFF WILLIS

Carolers and Musicians
Visit with Santa
Roasting Chestnuts
Children's Holiday Crafts
Holiday Flower Show
Holiday Wreaths Display
Garden Gate Shop Is Open

Admission — $4 Garden members and seniors age 65 and over; $6 nonmembers; $2.50 children age 12 and under.

Buffet Supper in the Gardenview Restaurant — 5 to 7 p.m., served by Santa's elves. $8.25 adults, $4.25 children age 12 and under. No reservations necessary.

Candlelight Tours

December 3 & 4, 1998 • 4:30 to 8:30 p.m. • Tower Grove House

CLIFF WILLIS

Experience all the elegance and romance of a 19th century English Christmas in Henry Shaw's home, decorated for the holidays in traditional Victorian splendor.

Candlelight Tour Package: $13 per person, includes Carols in the Garden, the Candlelight Tour, and refreshments in the Tower Grove House Tea Room. **Reserve tickets beginning November 9** by calling (314) 577-5141.

For more information call GardenLine, 577-9400, or 1-800-642-8842.

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